

Venn Diagrams

Hw Section P.1 & P.3

That's Foreign to Me

In a class of 30 students, 19 are studying French, 12 are studying Spanish and 7 are studying both French and Spanish

P.1: Show the sample space

P.1: If you choose a student at random, what is the probability the student is not taking a foreign language?

P.3: What is the probability of choosing someone who isn't in French given that the person is in Spanish?

P.3: What is the probability of choosing a person who does not take Spanish, given that the person is in French?

Concussed Boogers

On a football field of 22 players, 10 of the players have had a concussion, 15 of the players have picked their nose in public, and 8 of the players have had both a concussion and picked their nose in public.

P.1: Show the sample space

P.1: If you choose a player at random, what is the probability that he has had a concussion only?

P.3: Find $P(C|P)$

P.3: Find $P(P|C)$

P.3: Find $P(P|C^c)$

P.3: Find $P(C|P^c)$

Pool Party

You are having a pool party with 20 of your closest neighbors. As the host you serve watermelon and popsicles. 9 of your friends eat watermelon, 11 of your friends eat a popsicle and 5 ate nothing.

P.1: Show the sample space

P.1: If you choose a friend at random, what is the chance the friend ate both watermelon and a popsicle?

P.3: Find $P(W|P)$

P.3: Find $P(P|W)$

Gamification

There are 100 students in the sophomore class. Of these students, 25 own an Xbox, 50 own a Nintendo Switch and 40 don't own either.

P.1: Show the sample space

P.1: If you choose a student at random, what is the chance the student owns a Nintendo Switch only?

P.3: Find $P(X|N^c)$

P.3: Find $P(N^c|X^c)$

Pets R Us

In a park of 85 people, 55 are walking a dog, 25 are walking a Paradoxasaur and 20 are not walking any animal.

P.1: Show the sample space

P.1: If you choose a person at random, what is the probability the person is walking both a dog and a Paradoxasaur?

P.3: Find $P(D|P)$

P.3: Find $P(P|D^c)$

Binary Art

There are 10 types of people in this world, those who understand binary and those who don't. Of the 50 people in study hall, 22 of them are taking a computer course, 30 of them are taking an art class, and 15 are taking both a computer course and art class.

P.1: Show the sample space

P.1: If you choose a student at random, what is the chance the student only takes a computer class?

P.3: Find $P(A^c|C)$

P.3: Find $P(C^c|A)$

End of Course Test Questions

The key to this section is on smacmathgeometry.weebly.com under "Air Test"

2018

Question 18

Events A and B are independent.

$$P(A \text{ and } B) = 0.25$$

Enter possible probabilities for events A and B.

$$P(A) = \text{[input box]}$$

$$P(B) = \text{[input box]}$$

←	→	↶	↷	✖
1	2	3		
4	5	6		
7	8	9		
	0			
.	-	$\frac{\square}{\square}$		

Tree Diagram

Hw Section P.2

A Kings Random

In a standard deck of 52 cards, you pick two cards at random. Find the chance of getting 2 Kings. Find the probability of picking a King on your first and not picking a King on your second. Find the probability of not picking a King on your first and picking a King on your second. Find the probability of both cards not being Kings.

A Heart Returned

In a standard deck of 52 cards, you randomly pick a card, replace it, and randomly pick another card. Find the chance of getting 2 Hearts. Find the probability of picking a Heart on your first and not picking a Heart on your second. Find the probability of not picking a Heart on your first and picking a Heart on your second. Find the probability of both cards not being Hearts.

Tricycle

You roll a die 3 times while riding a tricycle. What is the probability you get a 1 on each die? List the relevant sample space.

Reds

In a standard deck of 52 cards, you are dealt two cards at random. Find the chance of getting 2 red cards. Find the probability of receiving red on your first and not receiving red on your second. Find the probability of receiving red on your first and receiving a red on your second. Find the probability of both cards not being red.

Face Cards

In a standard deck of 52 cards, you pick two cards at random. Find the chance of getting 2 Face Cards. Find the probability of picking a Face Card on your first and not picking a Face Card on your second. Find the probability of not picking a Face Card on your first and picking a Face Card on your second. Find the probability of both cards not being Face Cards.

One Eyed Jacks

In a standard deck of 52 cards, you randomly pick a card, replace it, and randomly pick another card. Find the chance of getting 2 One Eyed Jacks. Find the probability of picking a One Eyed Jack on your first and not picking a One Eyed Jack on your second. Find the probability of not picking a One Eyed Jack on your first and picking a One Eyed Jack on your second. Find the probability of both cards not being One Eyed Jacks.

Pentacycle

A die is rolled 3 times while the rider is on a pentacycle. What is the probability at least one 5 landing up? List the relevant sample space.

Reds

In a standard deck of 52 cards, you are dealt 5 cards. What is the probability that at least one card is a heart?

State Released 1

An online retailer conducts a random survey of its customers. The survey shows that 80% of the customers receive their purchases within four days, 95% of those customers are satisfied with the quality of their purchases.

What percent of all customers receive their purchases within four days and are not satisfied with the quality of their purchases?

- A) 4%
- B) 5%
- C) 19%
- D) 24%

Two-Way Frequency Tables

Hw Section P.4

Complete the two-way frequency tables.

1. Students were asked in Middle and High School which they liked more, Math or English. Complete the two-way table from the given information.

	Math	English	Total
Middle		18	43
High	19		31
Total			74

2. Complete the two-way tables and determine the requested probability.

In the class of 24 boys and 10 girls a survey was given about whether they liked Justin Bieber or Katie Perry. 20 boys liked Katie Perry and 9 of the girls liked Justin Bieber. Complete the two-way table

		Total
Total		

3. A class of 35 students were asked if they were members of the chess club or math club. 16 were in the chess club, 10 were in both, 9 students weren't in either club.

		Total
Total		

$P(\text{math club}) = \underline{\hspace{2cm}}$

4. 15 boys and 20 girls were surveyed about music preference between Top 40 and 80's music. 25 students picked Top 40, and 2 girls picked 80's music.

		Total
Total		

$P(\text{Boy and Top 40's}) = \underline{\hspace{2cm}}$

Create the two-way tables.

5. High School freshman were surveyed about their use of Facebook and Twitter. Of the 80 freshman surveyed, 65 use Twitter, 69 use Facebook, and 62 use both. Create a two-way frequency table and then determine:

$P(\text{Not Twitter and Not Facebook}) = \underline{\hspace{2cm}}$

The boys and girls of a class were surveyed about whether the class had been surveyed about who had been to Canada, Europe or both. The two way table shows the results of the survey.

	Europe	Not Europe	Total
Canada	3	22	25
Not Been to Canada	2	7	9
Total	5	29	34

- What is the probability that a student had been to Canada and Europe?
- What is the probability that a student had been to Europe but not Canada?
- What is the probability that a student had been to Canada?
- Given that they had not travelled to Europe, what is the probability that they had been to Canada?

The boys and girls of a class had been surveyed about whether they had received a speeding ticket or not. The two way table shows the results of the survey.

	Speeding Ticket	No Speeding Ticket	Total
Boy	9	31	40
Girl	1	25	26
Total	10	56	66

- What is the probability of getting a speeding ticket?
- What is the probability of being a girl with a speeding ticket?
- What is the probability that being a boy with no speeding ticket?
- Who is more likely to getting a speeding ticket, boys or girls? Boys or Girls Explain your choice.

- Are boys and speeding tickets independent or not? Yes or No
Use mathematics to explain your choice.

- The town of Centerville is divided by a railroad track that splits the population of the town into two groups, the North side and South side of town. Centerville is having an election for the mayor; Tim Jenson is running against Joe Smith. If the side of town that you live on is independent of the candidate that you will choose, how many people do we expect on the North Side to vote for Joe Smith?

	Jenson	Smith	Total
North			60
South			40
Total	50	50	100

The following relative frequency table was created from the data gathered from a survey about favorite colors.

	Red	Green	Blue	Yellow	Total
Male	.24	.14	.18	0	.56
Female	.16	.16	.06	.06	.44
Total	.40	.30	.24	.06	1

- What is the P(Red)?
- What is the P(Female)?
- What is the P(Green|Male)?
- What is the P(Female and Blue)?
- What is the P(Red or Green)?
- What is the P(Male and Not Green)?
- What is the P(Blue or Female)?

High Schools were surveyed about whether they owned a PS4 or an XBOX ONE. Of the 100 surveyed 70 owned XBOX ONE, 23 didn't own a PS4, and 9 didn't own either system.

			Total
Total			

23. What is the $P(\text{No XBOX ONE})$?

24. What is the $P(\text{PS4} \mid \text{XBOX ONE})$?

25. What is the $P(\text{PS4 and XBOX ONE})$?

26. What is the $P(\text{PS4 or XBOX ONE})$?

27. What is the $P(\text{Neither System})$?

28. Are owning a PS4 and owning a XBOX ONE independent of each other? Yes or No Use mathematics to explain your choice.

29. Why do you think that they two are not independent of each other? Why would one possibility influence the other?

30. A total of 50 students play either soccer or lacrosse.

- 20 girls play lacrosse.
- 20 boys play either soccer or lacrosse
- 20 students play soccer.

What is the probability that a student plays soccer or is a girl?

31. The two-way table shows the number of births, in thousands, in the United States for the years 2010 and 2011.

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
2010	324	303	340	327	325	338	346	359	350	342	337	326	4017
2011	322	299	330	315	328	335	348	362	346	331	328	322	3966

A baby born in 2011 is randomly selected.

What is the probability that the baby was born in February?

32. Rosa collects data on what students at her school like to eat at the movie theater. She asks a random sample of 120 students two questions:

Do you like to eat popcorn at the movie theater?

Do you like to eat candy at the movie theater?

Her data are partially shown in the table. Of the students she asks, 60 % of those who like to eat popcorn also like to eat candy.

Complete the table to show the number of students in each category.

	Like popcorn	Don't Like popcorn	Total
Like Candy	<input type="text"/>	<input type="text"/>	<input type="text"/>
Don't Like Candy	<input type="text"/>	<input type="text"/>	62
Total	70	<input type="text"/>	120

Once the table above is complete, answer each questions.

33. What is the probability that a student likes candy?

34. What is the probability that a “don’t like popcorn” was selected?

35. What is the probability that you select a person who likes candy that also likes popcorn?

36. Given that the person doesn’t like candy, what is the probability they don’t like popcorn?

Review Probability

End of Course Test Questions

The key to this section is on smacmathgeometry.weebly.com under "Air Test"

2017

Question 4

During a 90-day semester, a student records whether he arrives at school on time and whether he goes to bed by 10:00 p.m. the night before. The results are shown in the table.

Number of Occurrences		
	Arrives at School on Time	Arrives at School Late
Goes to Bed by 10:00 p.m.	72	8
Goes to Bed After 10:00 p.m.	9	1

Does the student arriving at school on time depend on whether the student goes to bed by 10:00 p.m.? Justify your reasoning.

Type your answer in the space provided.

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2018

Question 15

A total of 50 students play either soccer or lacrosse.

- 20 girls play lacrosse.
- 20 boys play either soccer or lacrosse.
- 20 students play soccer.

What is the probability that a student plays soccer or is a girl?

2017

Question 9

An online retailer conducts a random survey of its customers. The survey shows that 80% of the customers receive their purchases within four days, and 95% of those customers are satisfied with the quality of their purchases.

What percent of all customers receive their purchases within four days and are not satisfied with the quality of their purchases?

- (A) 4%
- (B) 5%
- (C) 19%
- (D) 24%

Question 11

Josh has a bag containing pieces of candy. The bag contains 10 red circular pieces, 10 red square pieces, 10 blue triangular pieces, and 10 blue star-shaped pieces. He draws a red piece of candy from the bag.

What is the complement of this event?

- (A) He draws a blue piece.
- (B) He draws a square piece.
- (C) He draws a circular piece.
- (D) He draws a star-shaped piece.

2018

Question 48

Rosa collects data on what students at her school like to eat at the movie theater. She asks a random sample of 120 students two questions:

- Do you like to eat popcorn at the movie theater?
- Do you like to eat candy at the movie theater?

Her data are partially shown in the table. Of the students she asks, 60% of those who like to eat popcorn also like to eat candy.

Complete the table to show the number of students in each category.

	Like Popcorn	Don't Like Popcorn	Total
Like Candy	<input type="text"/>	<input type="text"/>	<input type="text"/>
Don't Like Candy	<input type="text"/>	<input type="text"/>	62
Total	70	<input type="text"/>	120

Question 5

A soccer coach determines that there is a 50% chance that a star player, Ralph, will play in a tournament.

- The probability that another star player, Dan, will play is 0.48.
- The probability that both Ralph and Dan will play in the tournament is 0.25.

Select phrases to complete the statement.

To find the probability that either Ralph or Dan will play in the tournament, first add and then .

Drop down choices

To find the probability that either Ralph or Dan will play in the tournament, first add and then .

0.50 and 0.48
0.50 and 0.25
0.48 and 0.25

subtract 0.25 from the sum.
multiply the sum by 0.48.
divide 0.50 by the sum.
subtract 0.50 from the sum.
multiply the sum by 0.25.
divide 0.48 by the sum.

Question 8

A survey was conducted to determine whether a group of 11th graders and 12th graders preferred to go to the amusement park or to the zoo for a class trip. The results are shown in the table.

	Amusement Park	Zoo
11th Graders	32	18
12th Graders	24	26

Based on the table, what is the probability that a student preferred a class trip to the zoo given they are in 11th grade?

Question 28

Bryan records the number of hours he sleeps each night for several days and whether it is raining in the morning when he wakes up. Bryan concludes that these two events are independent:

- Bryan sleeps 8 or more hours.
- It is raining in the morning.

Based on Bryan's conclusion, which statement must be true?

- Ⓐ Bryan never sleeps 8 or more hours on days that it is not raining in the morning.
- Ⓑ The probability that Bryan sleeps 8 or more hours is the same whether or not it is raining in the morning.
- Ⓒ The probability that Bryan sleeps 8 or more hours is influenced by whether or not it is raining in the morning.
- Ⓓ The probability that Bryan sleeps 8 or more hours is the same as the probability that it is raining in the morning.

Question 32

A university determined the number of students pursuing different degrees, by gender. Some of the results are shown.

	Undergraduate Degree	Master's Degree	Doctoral Degree	Total
Male			500	12,500
Female		2,500		12,500
Total	16,250	6,250	2,500	25,000

What is the probability that a female student chosen at random is pursuing an undergraduate degree?

- (A) 18%
- (B) 32%
- (C) 36%
- (D) 64%

Probability

1. Josh has a bag containing pieces of candy. The bag contains 10 red circular pieces, 10 red square pieces, 10 blue triangular pieces, and 10 blue star-shaped pieces. He draws a red piece of candy from the bag.

What is the complement of this event?

- A) He draws a blue piece
- B) He draws a square piece
- C) He draws a circular piece
- D) He draws a star-shaped piece

2. Given the spinner, what is the:

$P(\text{Red}) =$ _____

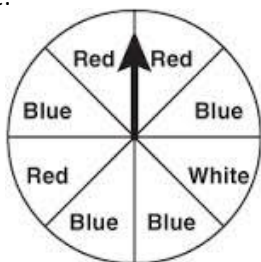
$P(\text{Red})^c =$ _____

$P(\text{White}) =$ _____

$P(\text{Green}) =$ _____

$P(\text{Green})^c =$ _____

$P(\text{Blue}) =$ _____



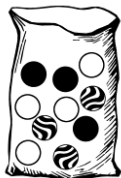
3. Given a bag of marbles, what is the:

$P(\text{Black}) =$ _____

$P(\text{White}) =$ _____

$P(\text{Swirl}) =$ _____

$P(\text{Swirl})^c =$ _____



4. Sam is picking fruit from a basket that contains many different kinds of fruit. Which set is independent?

- A) Event 1: He picks a kiwi and eats it
Event 2: He picks an apple and eats it
- B) Event 1: He picks an apple and eats it
Event 2: He picks an apple and eats it
- C) Event 1: He picks a kiwi and eats it
Event 2: He picks a kiwi and puts it back
- D) Event 1: He picks a kiwi and puts it back
Event 2: He picks an apple and puts it back

Chapter Review

5. Given the roll of 2 dice and their values are summed, what is the:



Complete the table of the sample space of the sum of two die.

$P(\text{sum of } 12) =$ _____

$P(\text{sum of } 12)^c =$ _____

$P(\text{sum of } 7) =$ _____

$P(\text{sum of } 4) =$ _____

$P(\text{sum of } 4)^c =$ _____

$P(\text{even sum})^c =$ _____

6. Joemomma is choosing cards from a deck of cards or rolls a die. Which set is independent?

- A) Event 1: He picks a card and keeps it
Event 2: He picks a second card
- B) Event 1: He picks a card and keeps it
Event 2: He rolls a die
- C) Event 1: He picks a marble and keeps it
Event 2: He picks a second marble
- D) Event 1: He picks a card and rips it up
Event 2: He picks a second card

7. A total of 200 people attend a party, as shown in the table.

	Adults	Children	Total
Male			80
Female			120
Total	150	50	200

A person is selected at random to win a prize. The probability of selecting a child, given that the person is female, is 0.25. The probability of selecting a male, given that the person is a child, is 0.4.

Complete the two-way table to show the number of adults, children, males, and females who attended the party.

8. Rosa collects data on what students at her school like to eat at the movie theater. She asks a random sample of 120 students two questions:

- Do you like to eat popcorn at the movie theater?
- Do you like to eat candy at the movie theater?

Her data are partially shown in the table. Of the students she asks, 60% of those who like to eat popcorn also like to each candy. Complete the table to show the number of students in each category.

	Like Popcorn	Don't Like Popcorn	Total
Like Candy			
Don't Like Candy			62
Total	70		120

9. A total of 50 students play either soccer or lacrosse.

- 20 girls play lacrosse
- 20 boys play either soccer or lacrosse
- 20 students play soccer

What is the probability that a student plays soccer or is a girl?

10. Use the incomplete table to answer the questions below.

- a. Complete the table.

	Adults	Children	Total
Male		20	
Female			60
Total	25	65	

- b. If a person is chosen at random, what is the probability the person is an adult and a male?
- c. If a person is chosen at random, what is the probability the person is a child?
- d. If a female is chosen at random, what is the probability the female is a child?
- e. If a child is chosen at random, what is the probability the child is an adult and a female?

11. The probability of flipping a fair coin and heads landing face up is 0.5. The probability of rolling a fair number cube, with sides numbered 1 through 6, and an odd number landing face up is 0.5.

What is the probability of flipping heads up or rolling an odd number?

12. An online retailer conducts a random survey of its customers. The survey shows that 80% of the customers receive their purchases within four days, 95% of those customers are satisfied with the quality of their purchases.

What percent of all customers receive their purchases within four days and are not satisfied with the quality of their purchases?

- E) 4%
- F) 5%
- G) 19%
- H) 24%

13. Events A and B are independent.

$$P(A \text{ and } B) = 0.25$$

What are possible probabilities for events A and B?

$$P(A) =$$

$$P(B) =$$

14. During a 90-day semester, a student records whether he arrives at school on time and whether he goes to bed by 10:00 pm the night before. The results are shown in the table

	Number of Occurrences	
	Arrives at School on Time	Arrives at School Late
Goes to Bed by 10:00 pm	72	8
Goes to Bed After 10:00 pm	9	1

Does the student arriving at school on time depend on whether the student goes to bed by 10:00 pm? Justify your reasoning.

15. The two-way table shows the number of births, in thousands, in the United States for the years 2010 and 2011.

	J	F	M	A	M	Ju	J	A	S	O	N	D	T
	a	e	a	a	a	n	u	a	e	c	o	e	o
	n	b	r	p	r	e	l	u	p	t	v	c	t
	a	n	n	r	y	ly	g	t					
2010	3247	3047	3407	3227	3237	3348	3346	3359	3500	3422	3377	3366	4017
2011	3229	2930	3315	3128	3235	3348	3362	3346	3411	3328	3282	3222	3366

A baby born in 2011 is randomly selected. What is the probability that the baby was born in February?

16. Fransisco asks the students in his school what pets they have. He studies the events show.
- Event S: The students has a cat.
 - Event T: The students has a dog.
- Fransisco finds that the two events are independent. Select all the equations that must be true for events S and T.

- $P(S|T) = P(S)$
- $P(S|T) = P(T)$
- $P(T|S) = P(S)$
- $P(T|S) = P(T)$
- $P(S \cup T) = P(S) \cdot P(T)$
- $P(S \cap T) = P(S) \cdot P(T)$

17. Juan studies the events shown below.
- Event A: A student has hairy moles
 - Event B: A student is born by the toxic waste plant
- Juan find the $P(A|B) = P(A)$
 What assumptions can be made about Event A and Event B? Choose all that apply.

- A. A and B are independent
- B. A and B are dependent
- C. A and B are mutually exclusive
- D. A and B must happen together
- E. A and B can't happen together

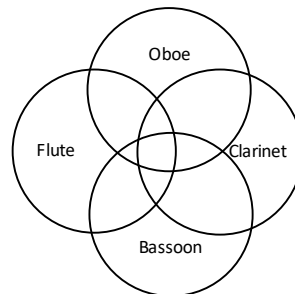
18. Timmy studies the events shown below.
- Event A: A student has no teeth
 - Event B: A student is born in Midvale
- Timmy finds the $P(A \cap B) = P(A) \cdot P(B)$
 What assumptions can be made about Event A and Event B? Choose all that apply.

- A. A and B are independent
- B. A and B are dependent
- C. A and B are mutually exclusive
- D. A and B must happen together
- E. A and B can't happen together

19. Max studies the events shown below.
- Event A: A student has no teeth
 - Event B: A student is born in Midvale
- Timmy find the $P(B|A) \neq P(B)$
 What assumptions can be made about Event A and Event B? Choose all that apply.

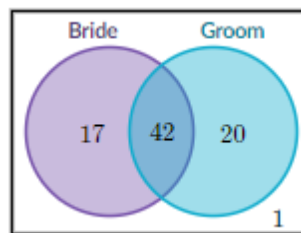
- A. A and B are independent
- B. A and B are dependent
- C. A and B are mutually exclusive
- D. A and B must happen together
- E. A and B can't happen together

20. This Venn diagram represents students who play instruments in the orchestra.



Identify each region of the Venn diagram that represents students who play only the flute and the oboe

Use this for the next 2 problems: The usher at a wedding asked each of the 80 guests whether they were a friend of the bride or of the groom. Here are the results:



21. In this sample, are the events "bride" and "groom" mutually exclusive?
22. Find the probability that a randomly selected person from this sample was a friend of the bride OR of the groom.

Perimeter

Hw Section 14.1

Determine the circumference. Leave as an exact value.

1. $r = 5\sqrt{3}$

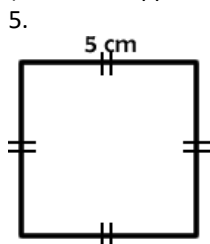
2. $d = \frac{5}{4}$ cm

Determine the missing information. Give exact answers.

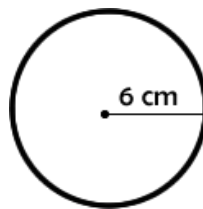
3. $C = 16\pi$ cm, find d .

4. $r = \frac{11}{16}$ cm, find C .

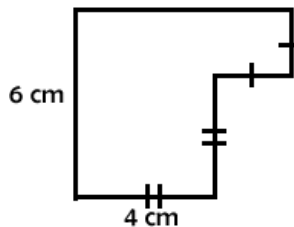
Determine the perimeter of the following figures.
(Lines that appear to be perpendicular are perpendicular.)



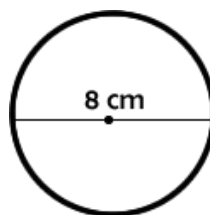
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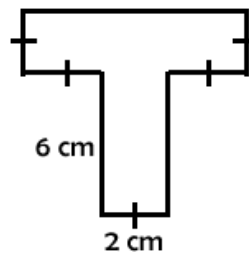
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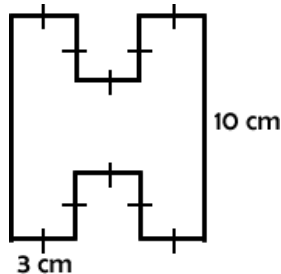
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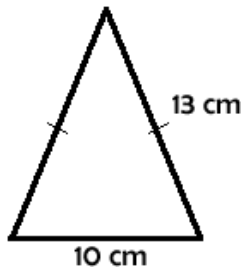
9.



10.



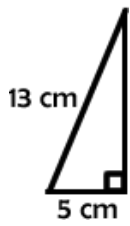
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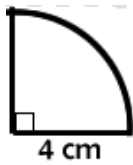
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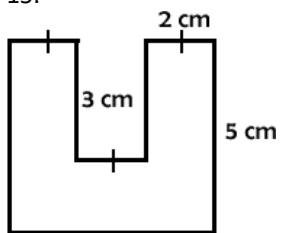
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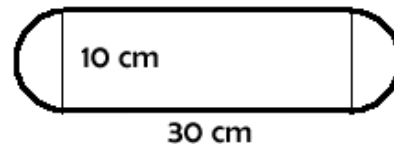
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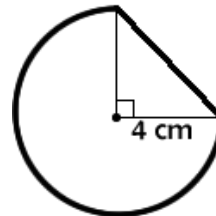
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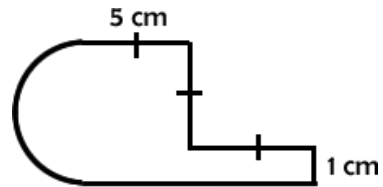
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17.



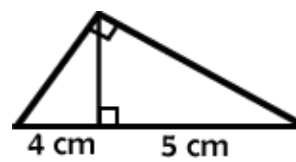
18.



19.



20.

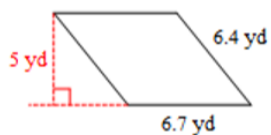


Area of Parallelograms & Triangles

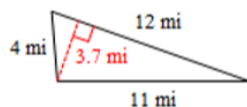
Hw Section 14.2

Draw the following. Find the area. Label your answer!1. $\square YEAH$ with base of 12 ft and height of 9 ft.2. $\triangle YES$ with base 4.5 cm and altitude of 3 cm.3. 4ft x 8ft rectangle $YEPS$.**Find the area of each. Label your answer!**

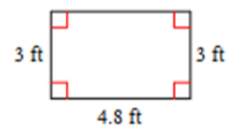
4.



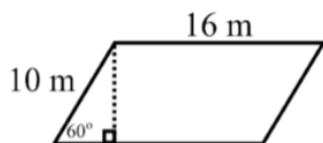
5.



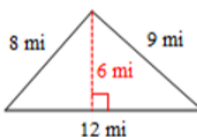
6.



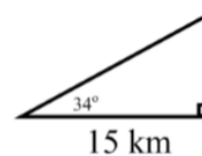
7.



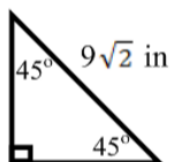
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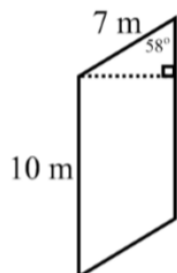
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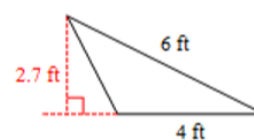
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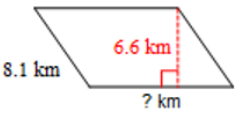
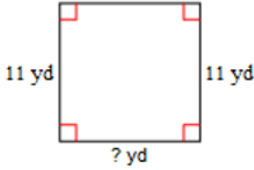
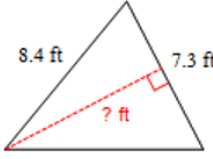
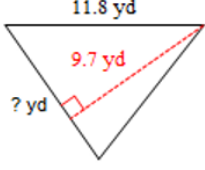
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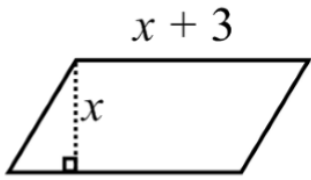
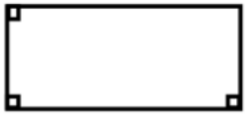
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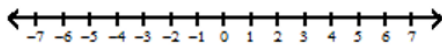
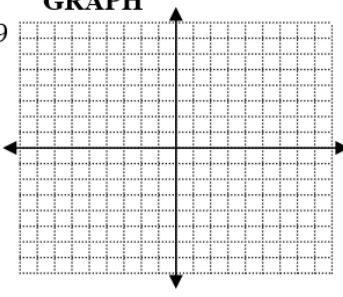
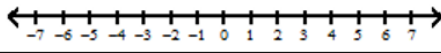
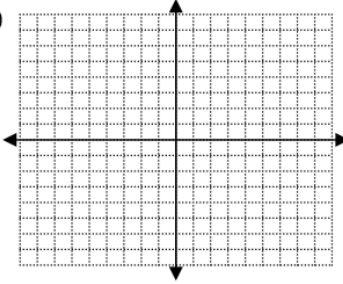
Find the missing measurement. Round to the nearest tenth.

<p>13.</p>  <p>Area = 79.2 km^2</p>	<p>14.</p>  <p>Area = 123.2 yd^2</p>	<p>15.</p>  <p>Area = 28.1 ft^2</p>	<p>16.</p>  <p>Area = 47 yd^2</p>
---	--	--	---

Find x.

<p>17.</p>  <p>Area = 40 ft^2</p>	<p>18.</p>  <p>Area = 65 ft^2</p>
---	--

ALGEBRA REVIEW

<p style="text-align: center;">SOLVE</p> <p style="text-align: center;">$2(3 - 2x) < 35$</p> 	<p style="text-align: center;">GRAPH</p> <p style="text-align: center;">$2x + 3y = -9$</p> 	<p style="text-align: center;">MULTIPLY</p> <p style="text-align: center;">$(2x - 5)(x + 3)$</p>
<p style="text-align: center;">SOLVE</p> <p style="text-align: center;">$4x + 5 \geq 8 + 6x$</p> 	<p style="text-align: center;">GRAPH</p> <p style="text-align: center;">$4x - 2y \leq 10$</p> 	<p style="text-align: center;">FACTOR</p> <p style="text-align: center;">$6x^2 - 7x - 5$</p>

Area of Trapezoids, Kites & Rhombi

Hw Section 14.3

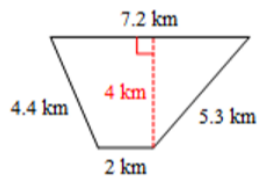
Draw the following. Find the area. Label your answer!

1. $\triangle YEAH$ with a base of 12 ft, a base of 8 ft and altitude of 9 ft.

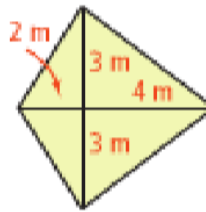
2. Kite $MATH$ with a diagonal of 7.2 cm and a diagonal of 10.4 cm.

Find the area of each. Label your answer!

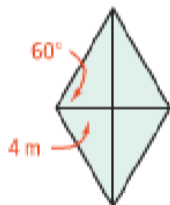
3. **TRAPEZOID**



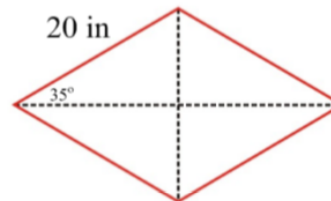
4. **KITE**



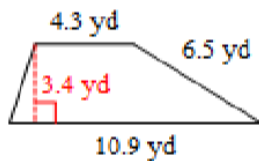
5. **RHOMBUS**



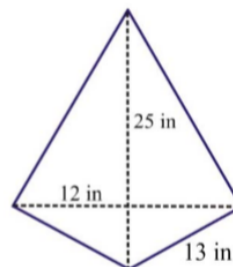
6. **RHOMBUS**



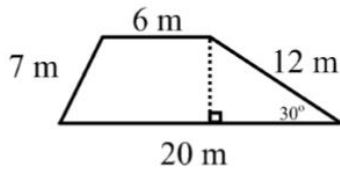
7. **TRAPEZOID**



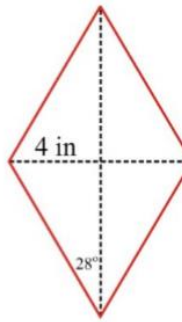
8. **KITE**



9. **TRAPEZOID**

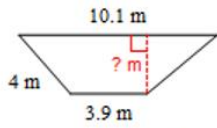


10. **RHOMBUS**



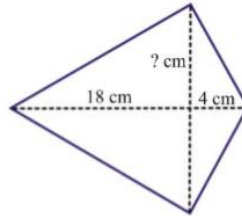
Find the missing measurement. Round to the nearest tenth.

11. **TRAPEZOID**



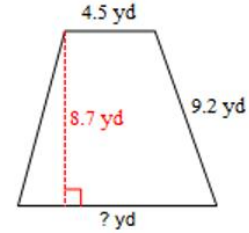
Area = 21 m²

12. **KITE**



Area = 182 cm²

13. **TRAPEZOID**

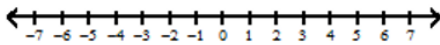


Area = 62.6 yd²

ALGEBRA REVIEW

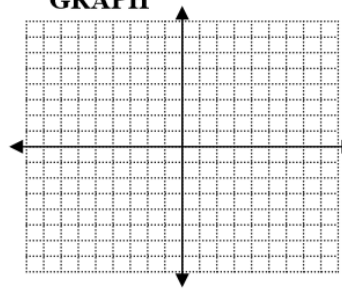
SOLVE

$$5(3 - 2x) \leq -35$$



GRAPH

$$3y = 6 - 3x$$

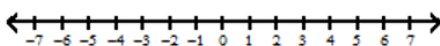


MULTIPLY

$$(2x - 5)(3x - 3)$$

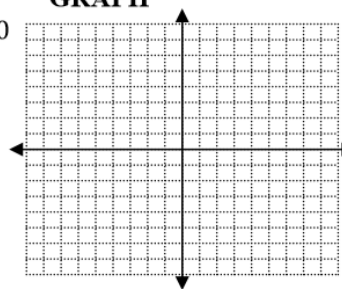
SOLVE

$$4x + 5 > -19 + 8x$$



GRAPH

$$4x - 2y < 10$$



FACTOR

$$2x^2 - 7x + 3$$

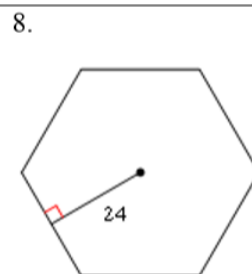
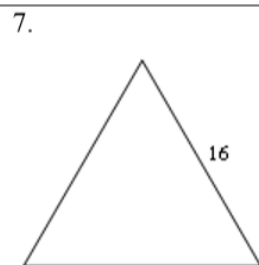
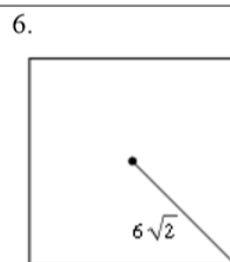
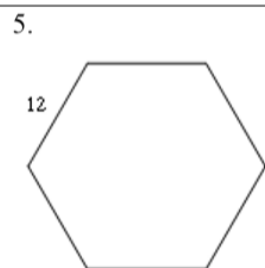
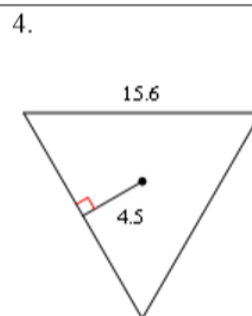
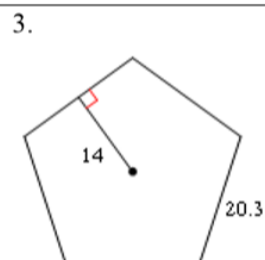
Area of Regular Polygons

Hw Section 14.4

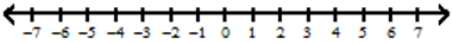
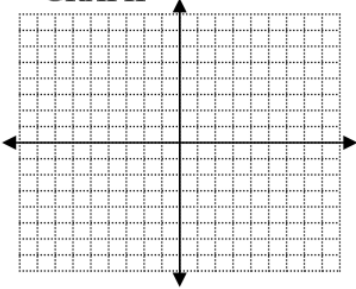
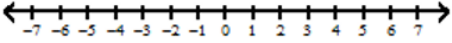
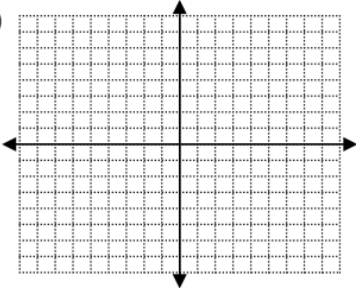
Find the area of each. Label your answer!

1.
Nonagon
Apothem = 14 cm
Side = 8 cm

2.
Dodecagon
Apothem = 8.5 in
Side = 12.2 in



Draw the following. Find the area. Label your answer!	
<p>9. A square with apothem of 4 in and perimeter of 32 in.</p>	<p>10. A regular pentagon with each side of 5 cm.</p>
<p>11. A regular hexagon with an apothem of 4 feet.</p>	<p>12. A square with radius 10 m.</p>

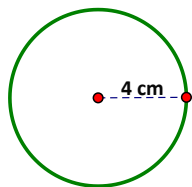
ALGEBRA REVIEW		
<p>SOLVE $5 - 2(3 - 2x) < 35$</p> 	<p>GRAPH $3y = 2x - 9$</p> 	<p>MULTIPLY $(2x - 5)(3x + 4)$</p>
<p>SOLVE $-4x - 5 \geq -11 - 6x$</p> 	<p>GRAPH $4x + 5y \leq 10$</p> 	<p>FACTOR $2x^2 - x - 3$</p>

Circles & Arcs

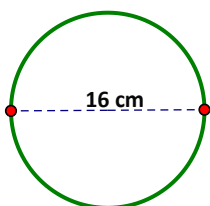
Hw Section 14.5

Find the area. Give exact answer unless told otherwise.

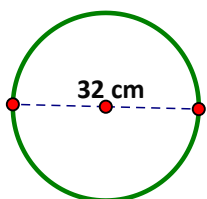
1.



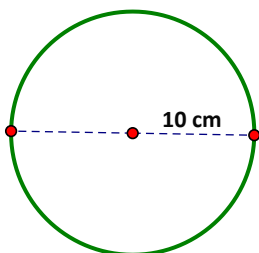
2.



3.

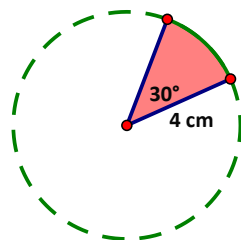


4.

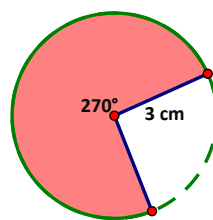


Determine the area of each sector. Give exact answers unless told otherwise.

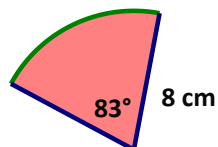
5.



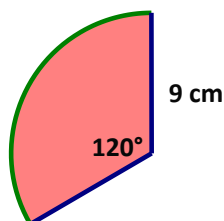
6.



7. Round to 2 decimal places.

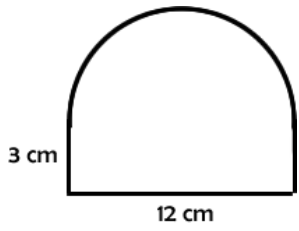


8.

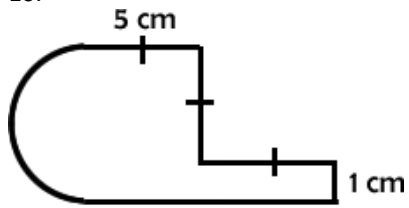


Determine the area of the following figures. Assume lines that appear perpendicular and parallel are in fact so.

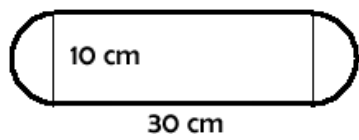
9.



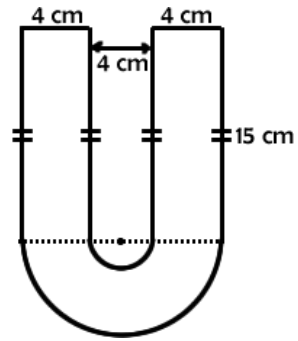
10.



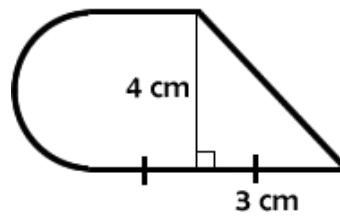
11.



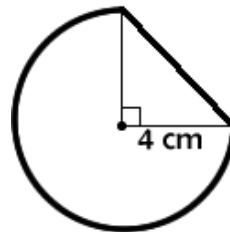
12.



13.



14.



End of Course Test Questions

The key to this section is on smacmathgeometry.weebly.com under "Air Test"

2018

Question 29

Points A, B and C lie on a circle with center Q.

- The area of sector AQB is twice the area of sector BQC.
- The length of arc AB is 28 centimeters.

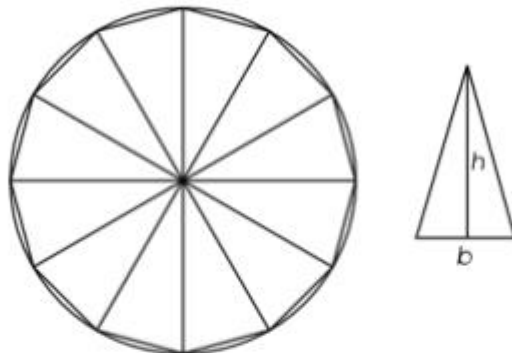
What is the length, in centimeters, of arc BC?

centimeters

←	→	↶	↷	✕
1	2	3		
4	5	6		
7	8	9		
	0			
.	-	$\frac{\square}{\square}$		

Question 36

To estimate the area of the circle, Henry divides a circle of radius r into n triangles, as shown, and uses the expression $\frac{h}{2} (b_1 + b_2 + \dots + b_n)$ to estimate the area of the circle. In the expression, variables b_1, b_2, \dots, b_n represent the base lengths of each triangle and h represents the height of each triangle.



Henry claims that the more triangles the circle is divided into, the closer the estimated area will be to the actual area.

Which statement about Henry's claim is accurate?

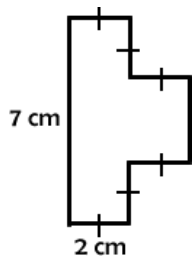
- (A) His claim is accurate because as n gets larger, the value of h gets closer to the value of r and the value of $(b_1 + b_2 + \dots + b_n)$ approaches $2\pi r$.
- (B) His claim is accurate because as n gets larger, the value of h gets closer to the value of $2r$ and the value of $(b_1 + b_2 + \dots + b_n)$ approaches πr .
- (C) His claim is inaccurate because as n gets larger, the value of h gets closer to the value of r and the value of $(b_1 + b_2 + \dots + b_n)$ deviates from $2\pi r$.
- (D) His claim is inaccurate because as n gets larger, the value of h gets closer to the value of $2r$ and the value of $(b_1 + b_2 + \dots + b_n)$ deviates from πr .

Area

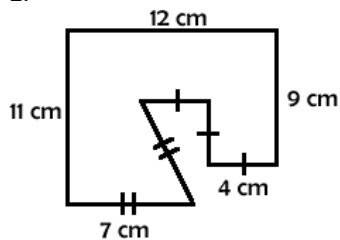
Review Chapter 14

Determine the perimeter of the following figures. (Lines that appear to be perpendicular are perpendicular and lines that appear to be parallel are.)

1.



2.

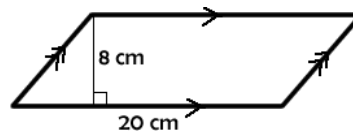


3.

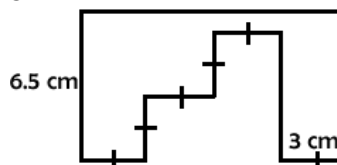


Determine the area of the following figures. (Lines that appear to be perpendicular are perpendicular and lines that appear to be parallel are.)

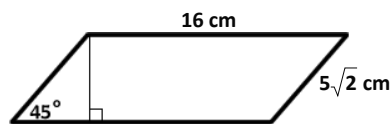
4.



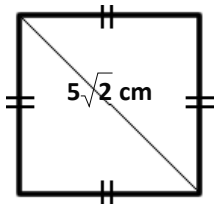
5.



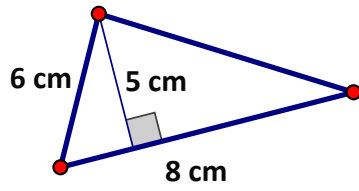
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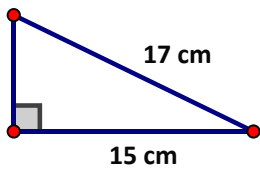
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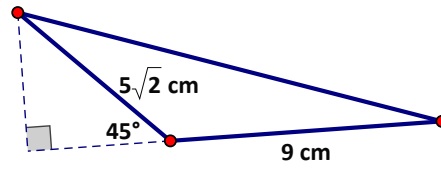
8.



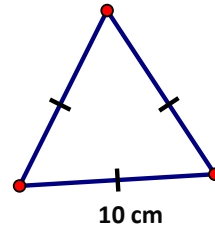
9.



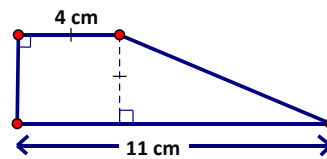
10.



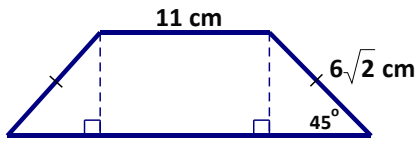
11.



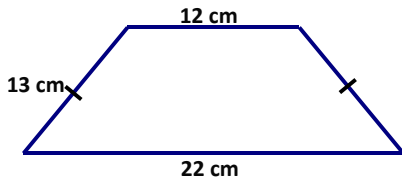
12.



13.

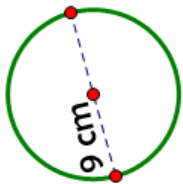


14.

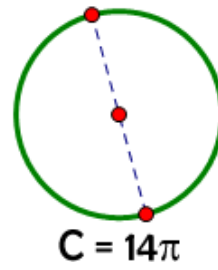


Determine the area of the circle or shaded circle sector.

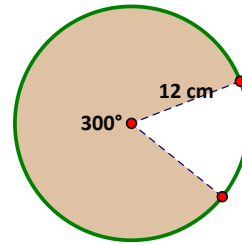
15.



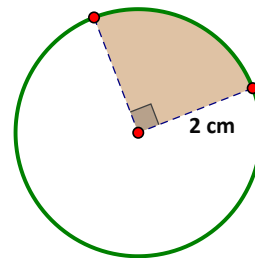
16.



17.

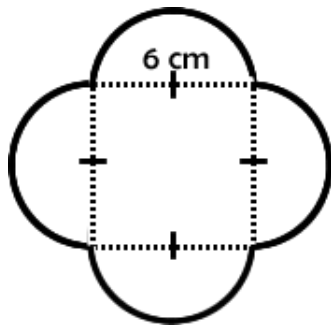


18.

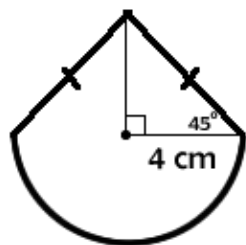


Determine the area of the following figures. (Lines that appear to be perpendicular are perpendicular and lines that appear to be parallel are.)

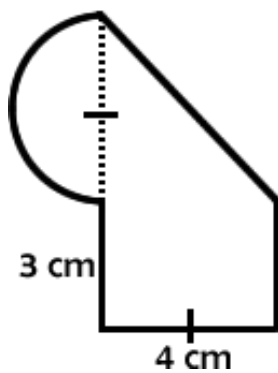
19.



20.



21.



Find the area of each regular polygon.

22. Pentagon with an apothem of 4 cm

23. Equilateral triangle with a side of 6 cm.

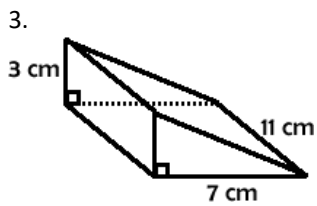
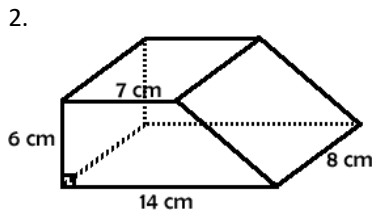
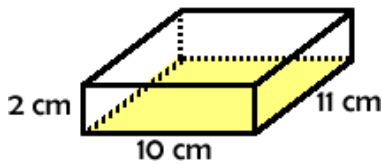
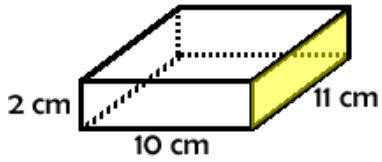
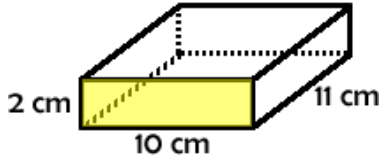
24. Hexagon with a perimeter of 48 cm.

Volume – Prisms

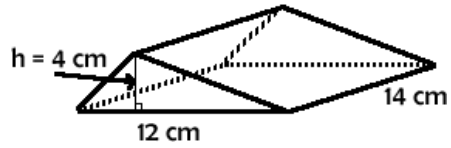
Hw Section 15.1

Determine the volume of the following prisms. (Lines that appear perpendicular are perpendicular.)

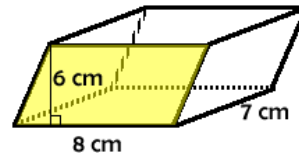
1. The same rectangular prism is provided three times below but in each instance a DIFFERENT BASE has been highlighted. Calculate the volume for each but change the base dimensions.



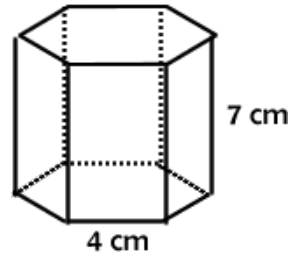
4.



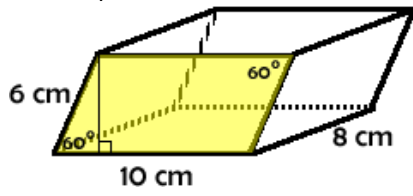
5.



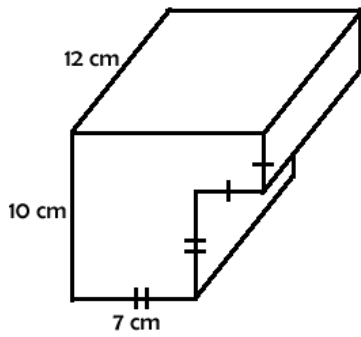
6. Regular Hexagonal Prism



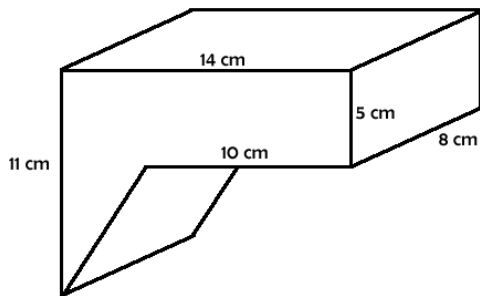
7. Oblique Prism



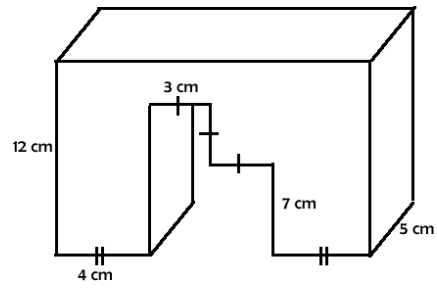
8.



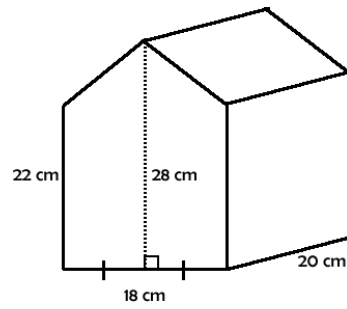
9.



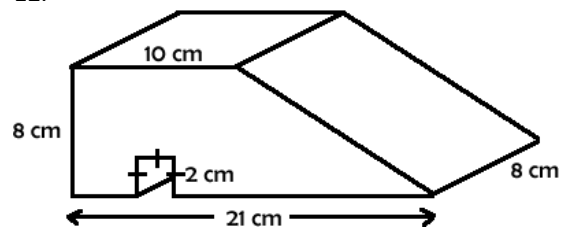
10.



11.



12.



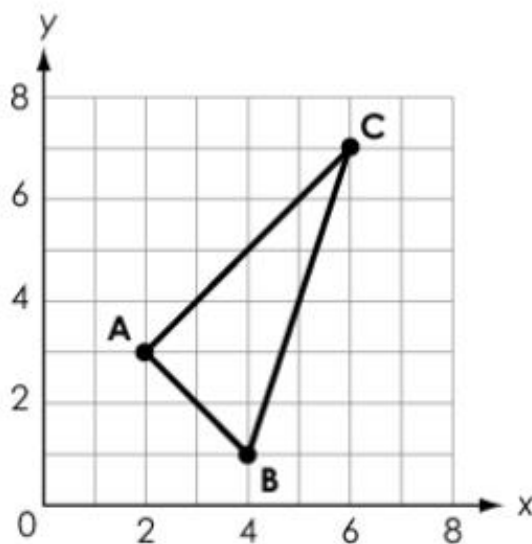
End of Course Test Questions

The key to this section is on smacmathgeometry.weebly.com under "Air Test"

2017

Question 1

Triangle ABC is shown.



Which three-dimensional figure results from rotating the triangle 360° about \overline{AC} ?

- (A) cone
- (B) cylinder
- (C) pyramid
- (D) sphere

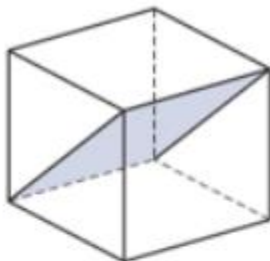
End of Course Test Questions

The key to this section is on smacmathgeometry.weebly.com under "Air Test"

2018

Question 16

A cube is sliced as shown.

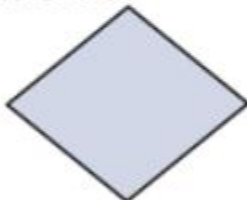


What is the shape of the cross section?

(A) Rectangle



(B) Rhombus



(C) Square

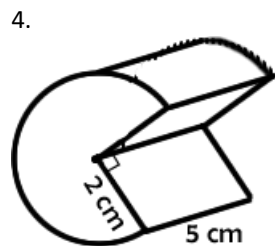
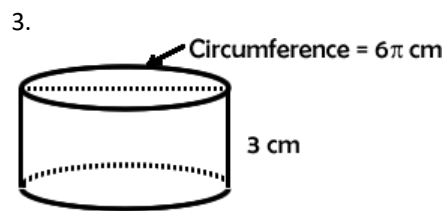
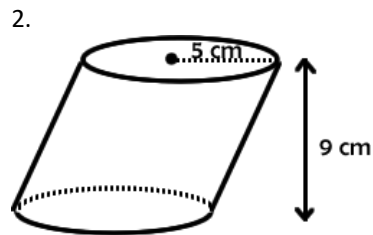
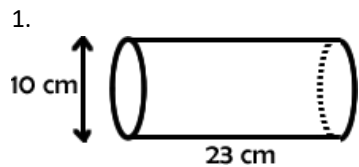


(D) Trapezoid

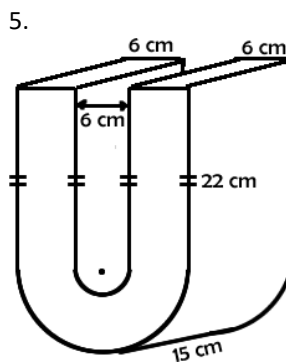


Volume – Cylinders & Cones

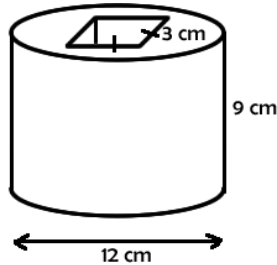
Determine the volume of the following.



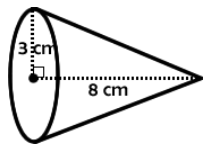
Hw Section 15.2



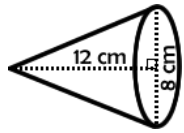
6. Square hole with sides of 3 cm



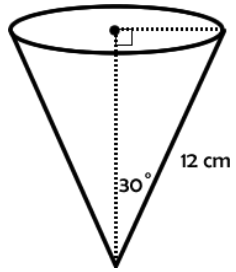
7.



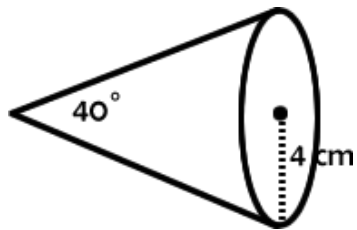
8.



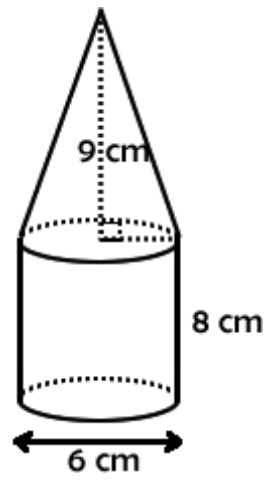
9.



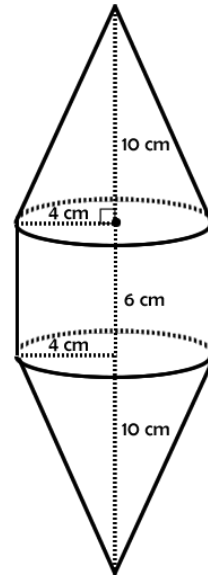
10.



11.



12.



End of Course Released Questions

2019

Question 1

A cylinder is sliced vertically along a dotted line, as shown.



Which two-dimensional shape is created from this cross section?

Ⓐ



Ⓒ



Ⓑ



Ⓓ



Question 41

A company wants to design a cylindrical object that has a height of 10 centimeters and a volume of at least 2,000 cubic centimeters, but not more than 2,500 cubic centimeters.

What is a possible radius, in centimeters, of the cylinder? Round your answer to the nearest hundredth.

centimeters

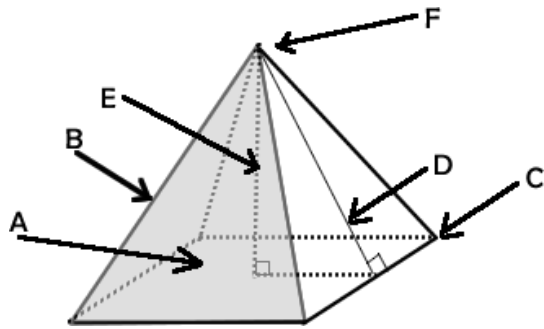
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1	2	3		
4	5	6		
7	8	9		
	0			
.	-	$\frac{\square}{\square}$		

Volume – Pyramids & Spheres

Hw Section 15.3

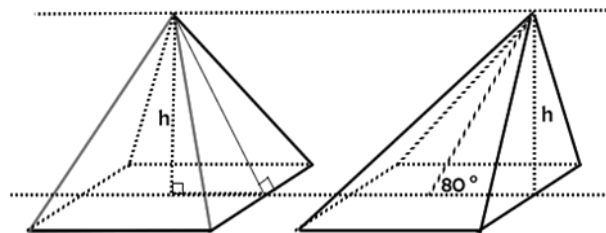
Match the following terms to the diagram.

1.



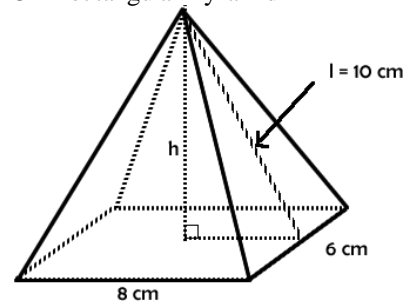
- _____ Slant Height
- _____ Apex
- _____ Height
- _____ Lateral Edge
- _____ Face
- _____ Vertex

2. Two pyramids with the same base are side by side. One is a right pyramid and the other is an oblique pyramid. If the oblique pyramid has been tilted to an angle of 80° , what is volume relationship between the two pyramids?

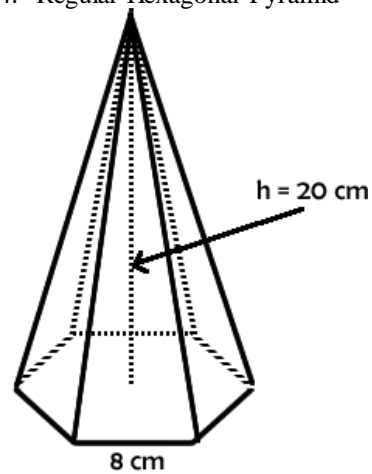


Determine the volume of the following.

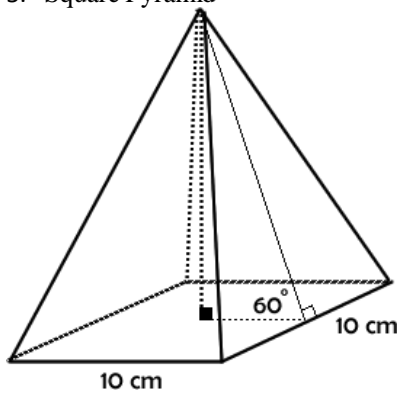
3. Rectangular Pyramid



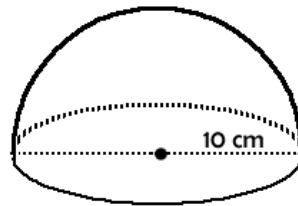
4. Regular Hexagonal Pyramid



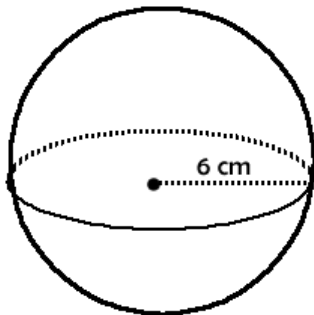
5. Square Pyramid



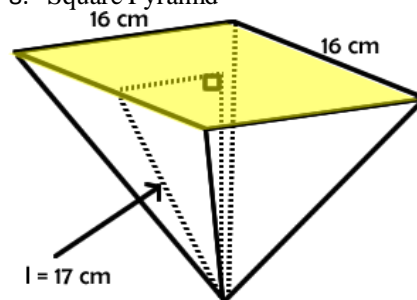
7.



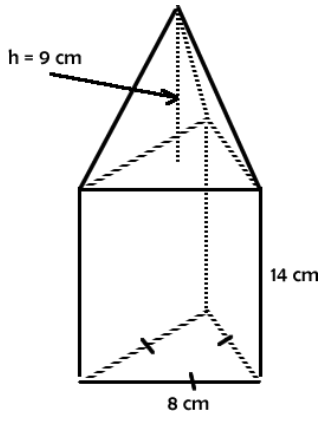
6.



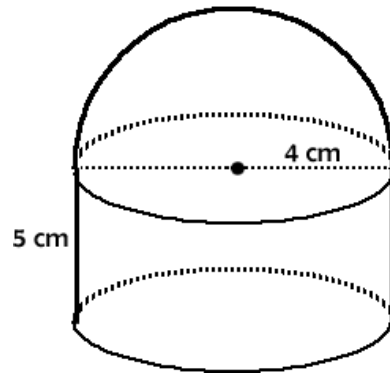
8. Square Pyramid



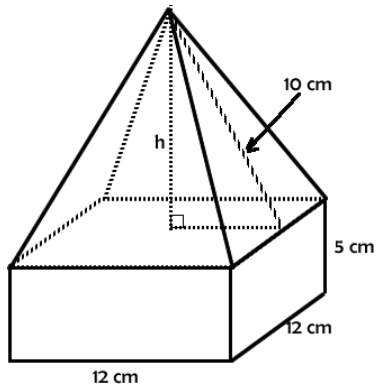
9.



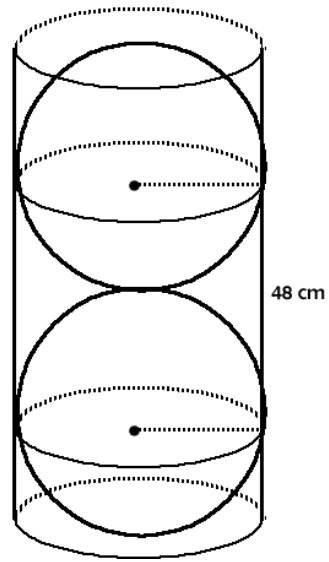
10.



11.



12. Two tennis balls fit exactly in the 48 cm tall cylindrical can. What is the volume of air in the can?



End of Course Test Questions

The key to this section is on smacmathgeometry.weebly.com under "Air Test"

2017

Question 5

A globe has a diameter of 12 inches. It fits inside a cube-shaped box that has a side length of 12 inches.

What is the volume, rounded to the nearest hundredth of a cubic inch, of the space inside the box that is not taken up by the globe?

cubic inches

End of Course Test Questions

The key to this section is on smacmathgeometry.weebly.com under "Air Test"

2018

Question 34

A cone and a sphere have the same volume. The height of the cone is 96 units.

What could be the values for the radius of the cone and the sphere? Round your answers to the nearest hundredth as needed.

Radius of Cone: units

Radius of Sphere: units

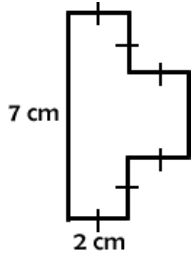
←			→			↶			↷			✖		
1	2	3												
4	5	6												
7	8	9												
	0													
.	-	CE												

Perimeter, Area & Volume

Review Chapter 15

Determine the perimeter of the following figures. (Lines that appear to be perpendicular are perpendicular and lines that appear to be parallel are.)

1.

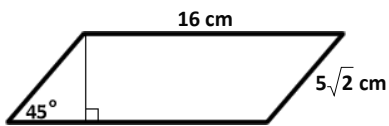


2.

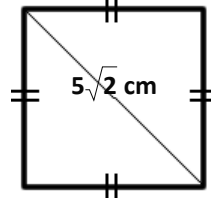


Determine the area of the following figures. (Lines that appear to be perpendicular are perpendicular and lines that appear to be parallel are.)

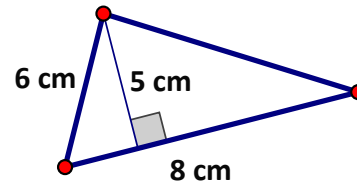
3.



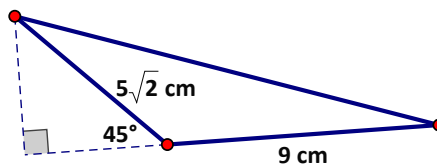
4.



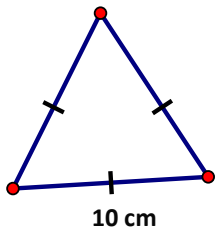
5.



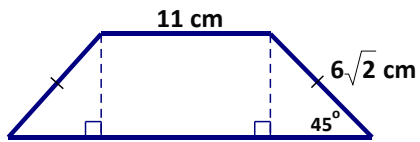
6.



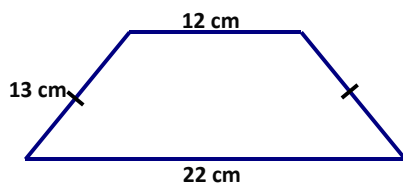
7.



8.

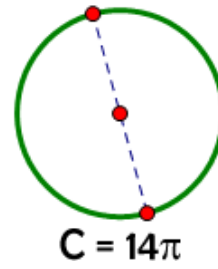


9.

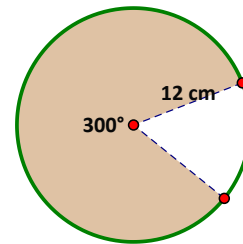


Determine the area of the circle or shaded circle sector.

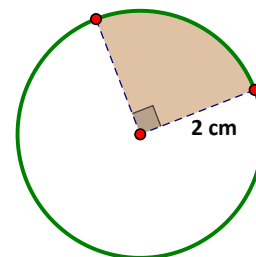
10.



11.

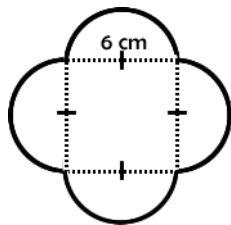


12.



Determine the area of the following figures. (Lines that appear to be perpendicular are perpendicular and lines that appear to be parallel are.)

13.



Find the area of each regular polygon.

14. Pentagon with an apothem of 4 cm

15. Equilateral triangle with a side of 6 cm.

16. Hexagon with a perimeter of 48 cm.

17. The volume of a rectangular prism with base dimensions of 3 cm and 8 cm and a prism height of 12 cm is:

- A. 132 cm³ B. 144 cm³
C. 288 cm³ D. 576 cm³

18. The volume of a triangular prism with base dimensions of 4 cm height and 10 cm base and a prism height of 15 cm is:

- A. 150 cm³ B. 300 cm³
C. 600 cm³ D. 900 cm³

19. The volume of a square pyramid with a base edge of 4 cm and a pyramid height of 9 cm is:

- A. 144 cm³ B. 72 cm³
C. 48 cm³ D. 36 cm³

20. The volume of a sphere with a radius of 3 cm is:

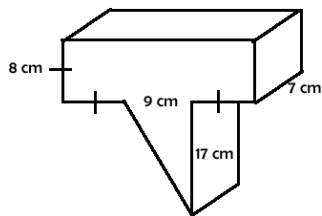
- A. 9π cm³ B. 12π cm³
C. 36π cm³ D. 72π cm³

21. The volume of a sphere with a diameter of 12 cm is:

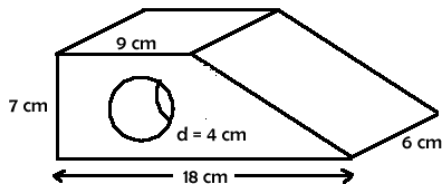
- A. 2304π cm³ B. 288π cm³
C. 144π cm³ D. 72π cm³

Determine the volume of the following solids. (Lines that appear to be perpendicular are perpendicular and lines that appear to be parallel are.)

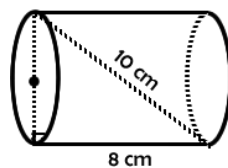
22.



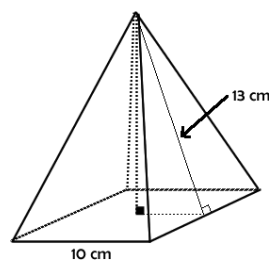
23.



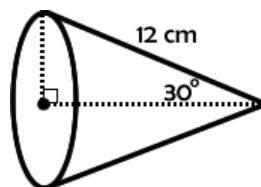
24.



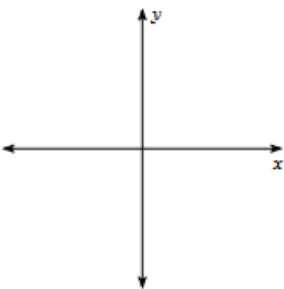
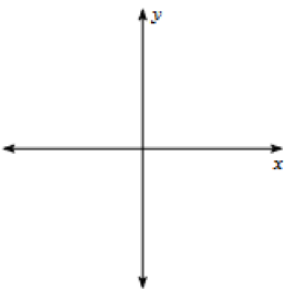
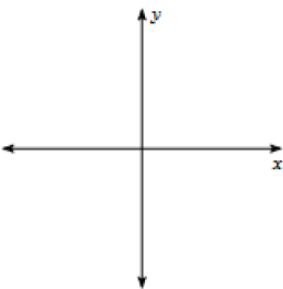
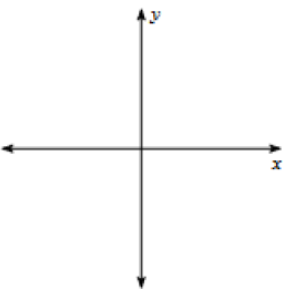
25.

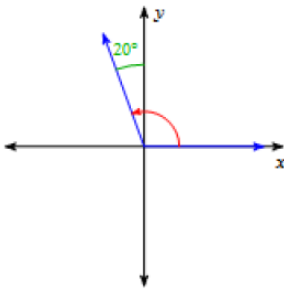
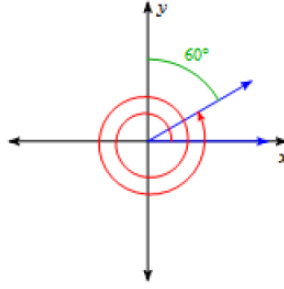
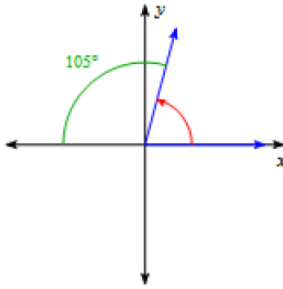
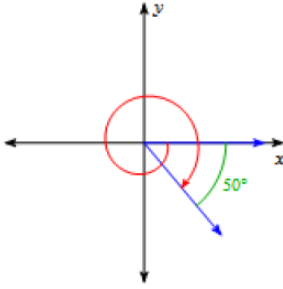


26.



Trigonometric Functions – Degree Angles Hw Section 16.1

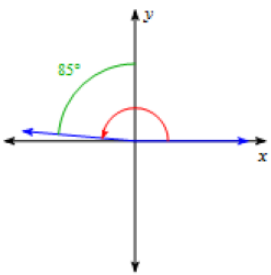
Draw an angle with the given measure in standard position.			
1. 330°	2. -115°	3. -290°	4. 440°
			

Find the measure of each angle.			
5. 	6. 	7. 	8. 

State the quadrant in which the terminal side of each angle lies.			
9. -446°	10. 870°	11. -190°	12. 215°

Find one positive and one negative coterminal angle the angle given.	
13. 30°	14. -705°

Find a coterminal angle between 0° and 360° .	
15. -45°	16. 435°

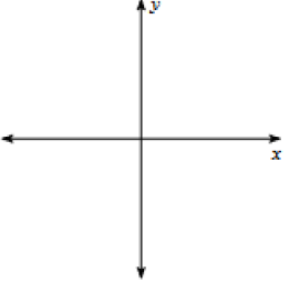
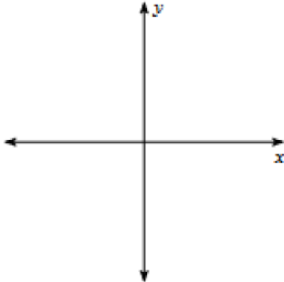
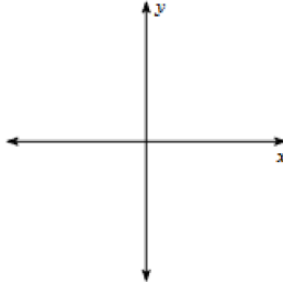
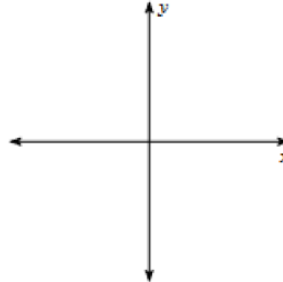
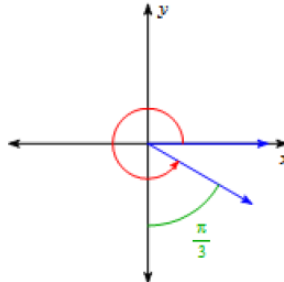
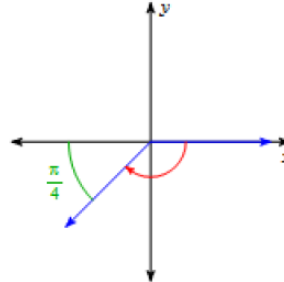
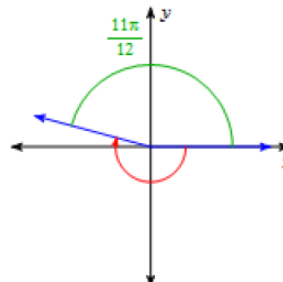
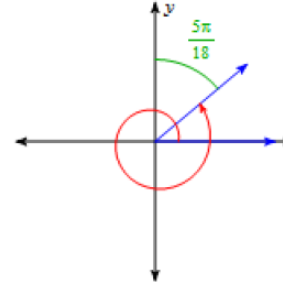
Find ALL coterminal angles.		
17. 	18. -200°	19. 90°

Determine if the statement is true or false. If it is false, give a counterexample.	
28. If the terminal side of an angle in standard position lies in quadrant I, then the angle is positive.	29. If the initial and terminal sides of an angle coincide, then the measure of the angle is zero.

Skillz Review Simplify the following.			
1. $\frac{\frac{1}{2}}{\frac{3}{4}}$	2. $\frac{\frac{1}{2}}{\frac{\sqrt{3}}{4}}$	3. $\frac{3}{\left(\frac{\sqrt{3}}{4}\right)}$	4. $\frac{\left(\frac{\sqrt{3}}{4}\right)}{\sqrt{2}}$

Trigonometry – Radian Angles

Hw Section 16.2

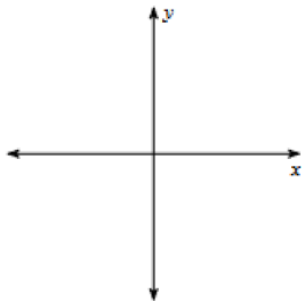
Draw an angle with the given measure in standard position.			
1. $\frac{\pi}{6}$	2. $-\frac{5\pi}{3}$	3. $\frac{3\pi}{4}$	4. $-\frac{12\pi}{5}$
			
Find the measure of each angle. (IN RADIANS!)			
5.	6.	7.	8.
			
State the quadrant in which the terminal side of each angle lies.			
9. $\frac{15\pi}{4}$	10. $\frac{5\pi}{6}$	11. $-\frac{10\pi}{9}$	12. $-\frac{17\pi}{6}$
Find one positive and one negative coterminal angle the angle given. (IN RADIANS!)			
13. $\frac{\pi}{3}$	14. $\frac{5\pi}{4}$		
Find a coterminal angle between 0 and 2π .			
15. $\frac{9\pi}{4}$	16. $\frac{13\pi}{2}$		

Convert each degree measure into radians.	
19. 225°	20. 280°
21. -210°	22. -1020°
Convert each radian measure into degrees.	
23. $-\frac{5\pi}{9}$	24. $\frac{5\pi}{6}$
25. $\frac{23\pi}{36}$	26. $\frac{79\pi}{18}$

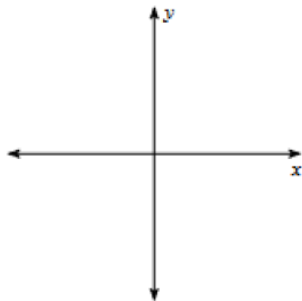
3. Some people really freak out when they see an angle measurement in radians without pi. Don't freak out! Remember pi is just a number, so think of π as 3.14, $\frac{\pi}{2}$ as 1.57, etc...

Draw the angle with the given radian measure in standard position.

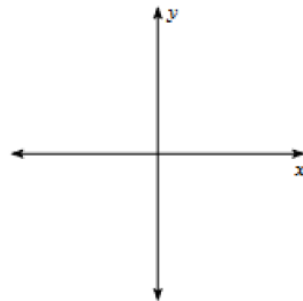
a. 2



b. -1.2

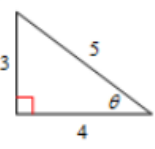
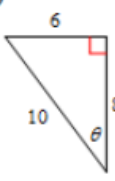
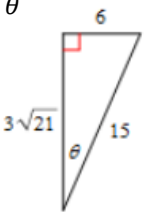
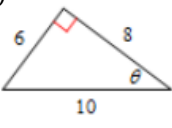
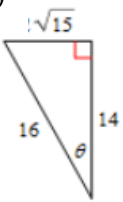
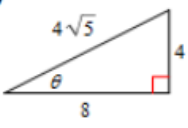
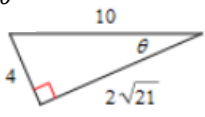
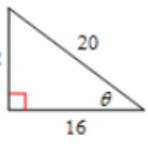
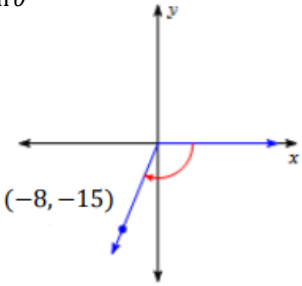
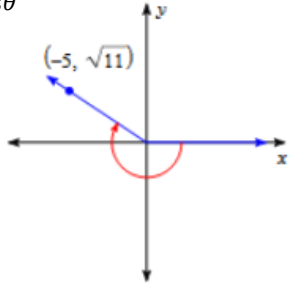


c. 5



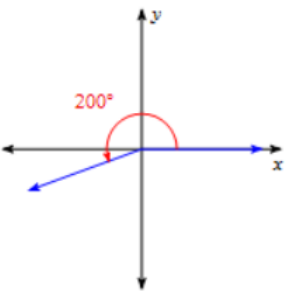
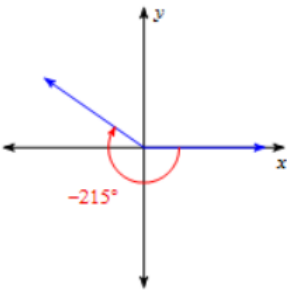
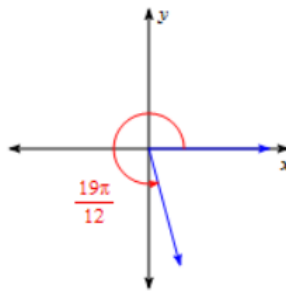
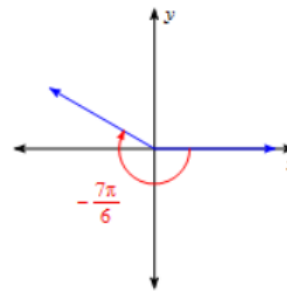
Trigonometry – Reference Triangle

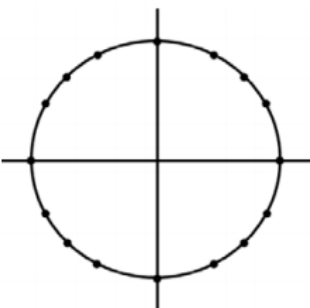
Hw Section 16.3

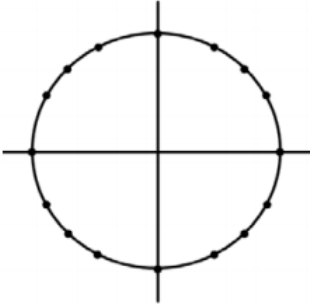
Find the RATIO of the trig function indicated. Do NOT find the actual measure of the angle!			
1. $\tan \theta$ 	2. $\sin \theta$ 	3. $\cos \theta$ 	4. $\tan \theta$ 
5. $\sin \theta$ 	6. $\cos \theta$ 	7. $\tan \theta$ 	8. $\sin \theta$ 
Use the given point on the terminal side of the angle θ to find the trigonometric function indicated.			
9. $\sin \theta$ 	10. $\cos \theta$ 		
Draw the reference triangle. Find the EXACT value of the trig ratio for θ .			
11. $\sin \theta$ for $(6, 8)$		12. $\cos \theta$ for $(\sqrt{3}, -1)$	
13. $\tan \theta$ for $(-15, -5)$		14. $\sin \theta$ for $(-2, 2\sqrt{3})$	

Draw the reference triangle. Find the EXACT value of the trig ratio for θ .	
<p>15. Given $\tan \theta = \frac{12}{5}$ in quadrant III. Find $\sin \theta$</p>	<p>16. Given $\cos \theta = -\frac{4}{5}$, where $\frac{\pi}{2} < \theta < \pi$. Find $\tan \theta$</p>
<p>17. Given $\tan \theta = -\frac{15}{8}$ where $\sin \theta < 0$. Find $\cos \theta$.</p>	<p>18. Given $\cos \theta = -\frac{\sqrt{5}}{3}$ where $\tan \theta$ is negative. Find $\sin \theta$</p>
Find the exact value of the other 2 trig functions for angle θ in standard position.	
<p>19. $\tan \theta = 3$ in quadrant III</p>	<p>20. $\sin \theta = \frac{3}{5}$ in quadrant II</p>

Trigonometry – Reference & Special Angles Hw Section 16.4

Find the reference angle.			
1. 	2. 	3. 	4. 
5. -130°	6. 230°	7. $-\frac{13\pi}{9}$	8. $\frac{3\pi}{4}$

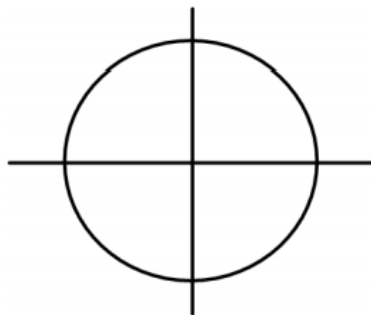
Find the exact value.			
9. $\sin 90^\circ =$	10. $\cos 120^\circ =$	11. $\tan 45^\circ =$	
12. $\tan 120^\circ =$	13. $\cos 225^\circ =$	14. $\sin 135^\circ =$	
15. $\sin 330^\circ =$	16. $\tan 315^\circ =$	17. $\cos 240^\circ =$	
18. $\sin(-225^\circ) =$	19. $\cos(-240^\circ) =$	20. $\tan(-300^\circ) =$	

Find the exact value.			
24. $\sin \frac{\pi}{2} =$	25. $\tan \frac{\pi}{4} =$	26. $\cos \frac{3\pi}{2} =$	
27. $\cos \frac{4\pi}{3} =$	28. $\cos \frac{\pi}{6} =$	29. $\tan \pi =$	
30. $\sin \frac{5\pi}{4} =$	31. $\cos \frac{5\pi}{3} =$	32. $\sin \frac{5\pi}{6} =$	
33. $\tan \frac{7\pi}{4} =$	34. $\sin(-\pi) =$	35. $\tan\left(-\frac{3\pi}{2}\right) =$	
36. $\cos\left(-\frac{\pi}{3}\right) =$	[Blank]	38. $\sin\left(-\frac{5\pi}{4}\right) =$	

If $0^\circ \leq \theta \leq 360^\circ$, then find θ			
39. $\sin \theta = \frac{1}{2}$	40. $\cos \theta = \frac{\sqrt{3}}{2}$	41. $\tan \theta = -\sqrt{3}$	If you like pictures of circles, you can draw one here!
42. $\sin \theta = \frac{\sqrt{2}}{2}$	43. $\cos \theta = -\frac{\sqrt{2}}{2}$	44. $\tan \theta = -\frac{\sqrt{3}}{3}$	

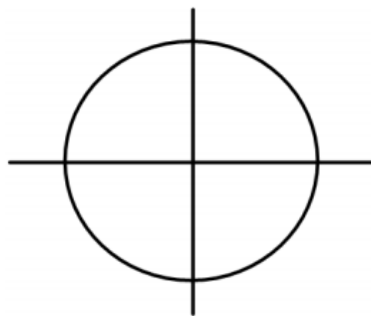
If $0\pi \leq \theta \leq 2\pi$, then find θ			
48. $\sin \theta = \frac{\sqrt{3}}{2}$	49. $\tan \theta = 1$	50. $\cos \theta = \frac{\sqrt{2}}{2}$	If you like pictures of circles, you can draw one here!
51. $\cos \theta = -\frac{1}{2}$	52. $\tan \theta = \sqrt{3}$	53. $\cos \theta = 0$	
			56. $\sin \theta = -\frac{1}{2}$

57. Fill in the table below.



degrees	radians	$\sin \theta$	$\cos \theta$	$\tan \theta$			- degree	- radian
240°								

58. Fill in the table below.

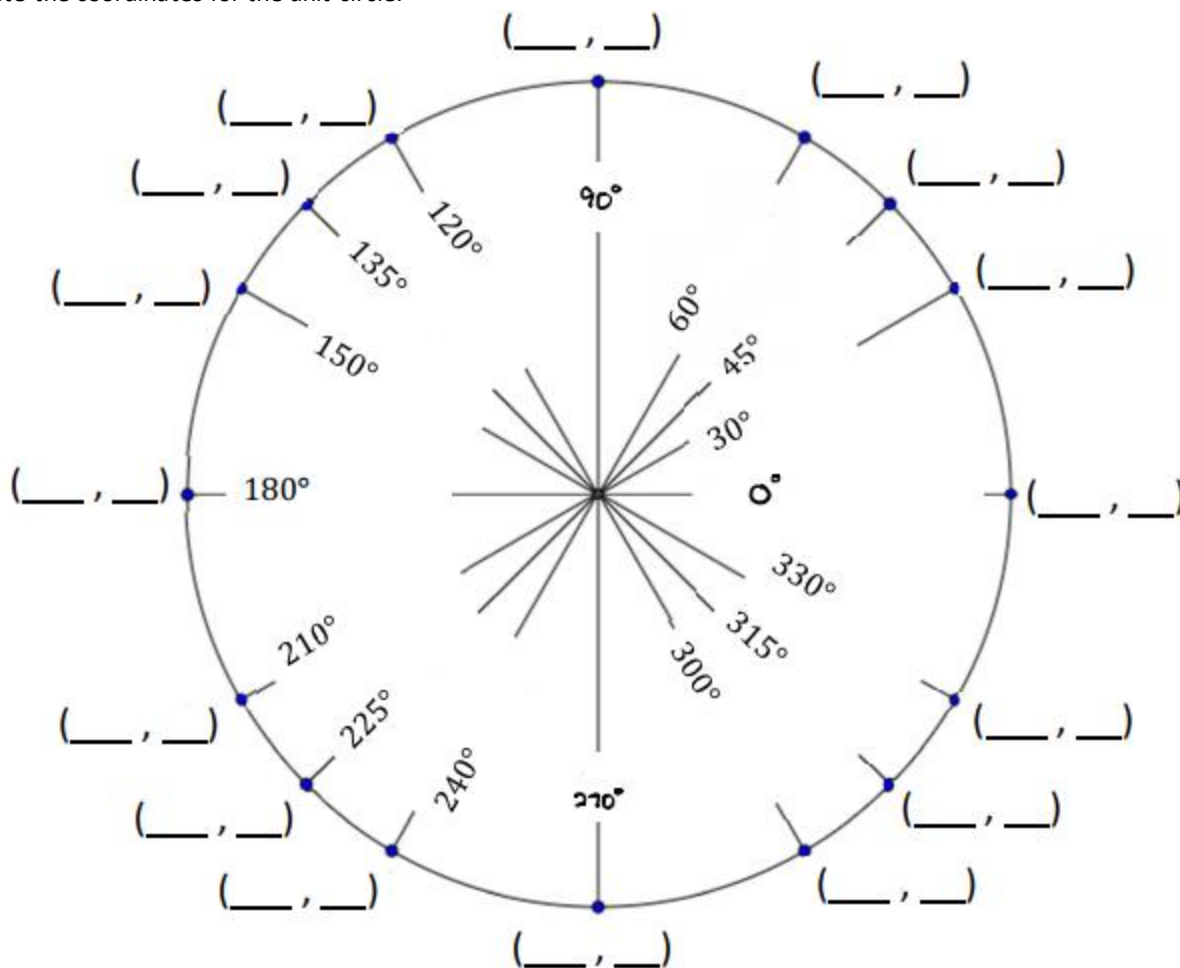


degrees	radians	$\sin \theta$	$\cos \theta$	$\tan \theta$			- degree	- radian
								$-\frac{3\pi}{4}$

Trigonometry

Review

Complete the coordinates for the unit circle.



Find the exact value.

9. $\sin 90^\circ =$

10. $\cos 120^\circ =$

11. $\tan 45^\circ =$

12. $\tan 120^\circ =$

13. $\cos 225^\circ =$

14. $\sin 135^\circ =$

15. $\sin 330^\circ =$

16. $\tan 315^\circ =$

17. $\cos 240^\circ =$

18. $\sin(-225^\circ) =$

19. $\cos(-240^\circ) =$

20. $\tan(-300^\circ) =$

If $0^\circ \leq \theta \leq 360^\circ$, then find θ

39. $\sin \theta = \frac{1}{2}$

40. $\cos \theta = \frac{\sqrt{3}}{2}$

41. $\tan \theta = -\sqrt{3}$

42. $\sin \theta = \frac{\sqrt{2}}{2}$

43. $\cos \theta = -\frac{\sqrt{2}}{2}$

44. $\tan \theta = -\frac{\sqrt{3}}{3}$

State the quadrant in which the terminal side of each angle lies.			
9. -446°	10. 870°	11. -190°	12. 215°
Find one positive and one negative coterminal angle the angle given.			
13. 30°		14. -705°	
Convert each radian measure into degrees.			
23. $-\frac{5\pi}{9}$		24. $\frac{5\pi}{6}$	
25. $\frac{23\pi}{36}$		26. $\frac{79\pi}{18}$	
Draw the reference triangle. Find the EXACT value of the trig ratio for θ .			
11. $\sin \theta$ for $(6, 8)$		12. $\cos \theta$ for $(\sqrt{3}, -1)$	
13. $\tan \theta$ for $(-15, -5)$		14. $\sin \theta$ for $(-2, 2\sqrt{3})$	