


Rewrite the given statement into if-then form. Then tell what the converse, inverse, contrapositive is.

1. All octagons have 8 sides.

- a. If-Then Conditional statement: If a polygon is an octagon, then it has 8 sides
- b. Hypothesis: a polygon is an octagon
- c. Conclusion: it has 8 sides
- d. Converse: If a polygon has 8 sides, then it is an octagon
- e. Inverse: If a polygon is not an octagon, then it does not have 8 sides
- f. Contrapositive: If a polygon doesn't have 8 sides, then it is not an octagon

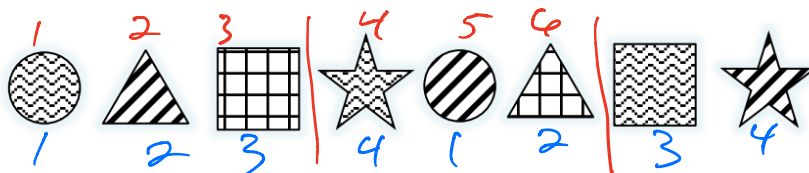
Determine the truth-value for the following statements. If a statement is false, give a counter example.

- 2. If you are a freshman, then you have Mr. Sullivan for math. *False, Chloe has Mr. McConnell for Math*
- 3. If a number is divisible by 10, then it ends with a "0". *True*
- 4. If your first name is Barb, then your last name is Dwyer. *False Barb B. Doll*
- 5. If the figure is a triangle, then its angles are all acute. *False, *

Find a pattern for each sequence. Use the pattern to find the next two terms.

- 6. 30, 23, 16, 9... *2, -5*
- 7. 1, 0, 10, 0, 100, 0, 1000... *0, 1000*
- 8. 64, 32, 16... *8, 4*

Use the sequence and inductive reasoning to make a conjecture:



- 9. What pattern is in the 18th figure?
- 10. What is the shape of the 27th figure?

3518



4527



Proofs

Review 2

Name _____

Support each conclusion with a valid reason.

11. Given: $5x = 25$

12. Given: $3(2y + x) = -12$

13. Given: $-x = 21$

Conclusion: $x = 5$

Conclusion: $6y + 3x = -12$

Conclusion: $x = -21$

Reason: Div'n prop of =

Reason: Distr. prop of =

Reason: Div'n prop of =

14.

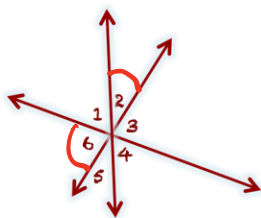
Given: $24 - 2(x - 2) - 30 = 0$

Prove: $x = -1$

#14 (Proof)

Statement	Reason
1. $24 - 2(x - 2) - 30 = 0$	1. Given
2. $24 - 2x + 4 - 30 = 0$	2. Dist. prop of =
3. $-2x - 2 = 0$	3. Subst. prop of =
4. $-2x = 2$	4. Add'n prop of =
5. $x = -1$	5. Div'n prop of =
6.	6.

15.



Unit 2 Application

Given: $\angle 2 \cong \angle 6$
Prove: $\angle 3 \cong \angle 5$

#15 (Proof)

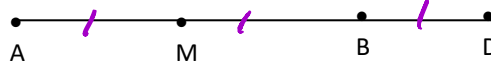
Statement	Reason
1. $\angle 2 \cong \angle 6$	1. Given
2. $\angle 2 \cong \angle 5, \angle 3 \cong \angle 6$	2. Vertical angles are Congruent
3. $m\angle 2 = m\angle 6, m\angle 2 = m\angle 5, m\angle 3 = m\angle 6$	3. Def'n of \cong ANGLES
4. $m\angle 6 = m\angle 5$	4. Subst prop of =
5. $m\angle 3 = m\angle 5$	5. Subst prop of =
6. $\angle 3 \cong \angle 5$	6. Def'n of \cong ANGLES

Proofs

Review 2

Name _____

16. Given M is the midpoint of \overline{AB}
 B is the midpoint of \overline{MD}
 Prove MD = 2MB

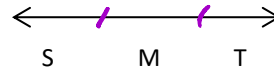


Statements

Reasons

- | | |
|---|-----------------------------------|
| a. M is the midpoint of \overline{AB}
B is the midpoint of \overline{MD} | a. <u>Given</u> |
| b. AM = MB
MB = BD | b. <u>Def'n of Midpoint</u> |
| c. MD = MB + BD | c. <u>Segment Add'n Postulate</u> |
| d. MD = MB + MB | d. <u>Substitution PoE</u> |
| e. MD = 2MB | e. <u>Substitution PoE</u> |

17. Given M is the midpoint of \overline{ST}
 Prove ST = 2MT



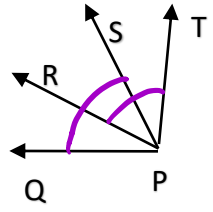
Statements

Reasons

- | | |
|---|-----------------------------------|
| a. <u>M is the midpoint of \overline{ST}</u> | a. <u>GIVEN</u> |
| b. <u>SM = MT</u> | b. <u>Def'n of Midpoint</u> |
| c. <u>ST = SM + MT</u> | c. <u>Segment Add'n Postulate</u> |
| d. <u>ST = MT + MT</u> | d. <u>Substitution PoE</u> |
| e. <u>ST = 2MT</u> | e. <u>Substitution PoE</u> |
| f. | f. |
| g. | g. |

18.
Given $\angle QPS \cong \angle TPR$

Prove $\angle QPR \cong \angle TPS$



Statement	Reason
a. $\angle QPS \cong \angle TPR$	a. GIVEN
b. $m\angle QPS = m\angle TPR$	b. Def'n of $\cong \angle$ s
c. $m\angle QPS = m\angle QPR + m\angle RPS$ $m\angle TPR = m\angle TPS + m\angle RPS$	c. Angle Add'n Postulate
d. $m\angle QPR + m\angle RPS = m\angle TPS + m\angle RPS$	d. Substitution Property of Equality
e. $m\angle QPR = m\angle TPS$	e. Subtraction P.O.E
f. $\angle QPR \cong \angle TPS$	f. Def'n of $\cong \angle$ s

Algebra Review

Solve each equation for x!		Multiply!	Factor!
1. $12x - 6 = -3$ $12x = 3$ $x = \frac{3}{12}$ $x = \frac{1}{4}$	2. $5x - 4 = 3x - 4$ $2x - 4 = -4$ $2x = 0$ $x = 0$	3. $5x(3x - 2)$ $= 15x^2 - 10x$	4. $10x^2 - 20x$ $= 10x(x - 2)$
5. Graph the equation: $y = 5 - 2x$		6. Graph the equation: $y = 5$	