

Free Response Questions

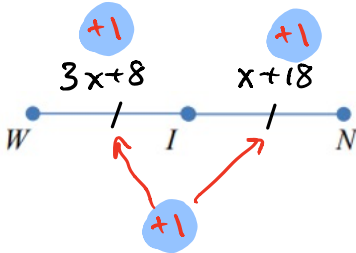
1. GIVEN

I is the midpoint of \overline{WN}

$$WI = 3x + 8$$

$$IN = x + 18$$

9/9 a. Label the figure correctly.



b. Find x

$$\begin{aligned} WI &= IN \\ 3x + 8 &= x + 18 \\ 2x + 8 &= 18 \\ 2x &= 10 \\ x &= 5 \end{aligned}$$

c. Find IN

$$\begin{aligned} IN &= x + 18 \\ &= (5) + 18 \\ IN &= 23 \end{aligned}$$

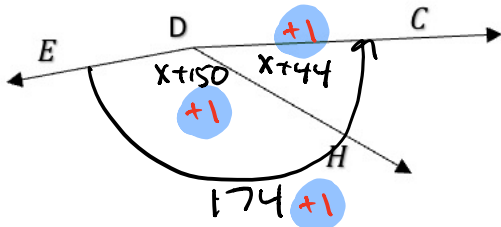
9/9 2. GIVEN

$$m\angle CDH = x + 44$$

$$m\angle CDE = 174^\circ$$

$$m\angle HDE = x + 150$$

a. Label the figure correctly.



b. Find x

$$\begin{aligned} m\angle CDH + m\angle HDE &= m\angle CDE \\ (x + 44) + (x + 150) &= 174 \\ 2x + 194 &= 174 \\ 2x &= -20 \\ x &= -10 \end{aligned}$$

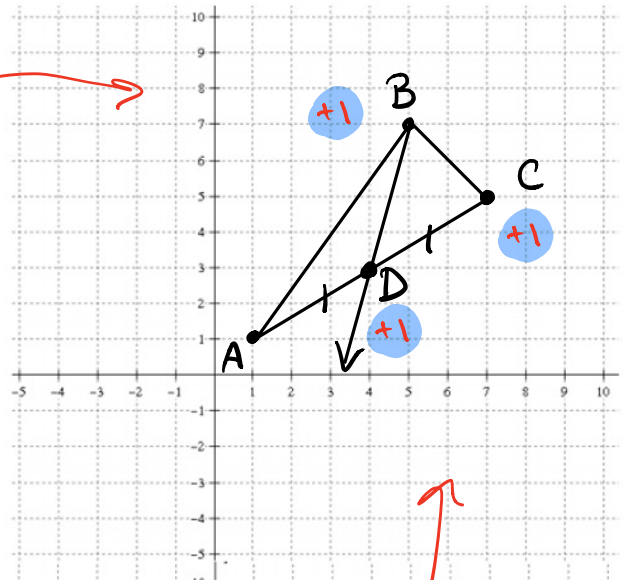
c. Find $m\angle CDH$

$$\begin{aligned} m\angle CDH &= x + 44 \\ &= (-10) + 44 \\ m\angle CDH &= 34 \end{aligned}$$

9/9

3. Use the coordinate plane to answer the questions.

a. Graph the points A(1, 1) and B(5, 7) and C(7, 5).
Connect the points in order to make triangle ΔABC



b. Find AC

$$AC = \sqrt{(\Delta x)^2 + (\Delta y)^2} \quad +1$$

$$= \sqrt{[6]^2 + [4]^2} \quad +1$$

$$= \sqrt{36 + 16}$$

or $\left. \begin{matrix} AC = \sqrt{52} \\ AC = 2\sqrt{13} \end{matrix} \right\} \quad +1$

c. Find the midpoint, D, of AC using the proper formula.

d. Draw \overrightarrow{BD}

$$M_{AC} = \left(\frac{\sum x}{2}, \frac{\sum y}{2} \right) \quad +1$$

$$= \left(\frac{8}{2}, \frac{6}{2} \right) \quad +1$$

$$M_{AC} = (4, 3) \quad +1$$

4.

Label the picture and fill in the missing reasons in the two column proof.

Given: $EG = 59$
 $EF = 8x - 14$
 $FG = 4x + 1$

Prove: $x = 6$

STATEMENT	REASON
1. $EG = 59$ $EF = 8x - 14$ $FG = 4x + 1$	1. GIVEN +1
2. $EF + FG = EG$	2. Segment Add'n Post +1
3. $8x - 14 + 4x + 1 = 59$	3. Substitution PoE for R +1
4. $12x - 13 = 59$	4. " " " " +1 or (Combine like terms)
5. $12x = 72$	5. Add'n PoE for R +1
6. $x = 6$	6. Div'n PoE for R +1

Some possible reasons:

- Given
- Addition Property of Equality
- Subtraction Property of Equality
- Multiplication Property of Equality
- Division Property of Equality
- Substitution
- Distributive Property
- Combine like terms
- Definition of _____
- _____ Postulate
- _____ Theorem

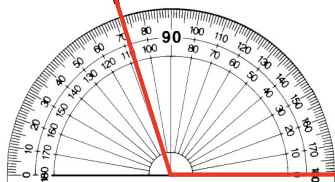
Multiple Choice Section

1	2	3	4	5	6
D	B	C	A	A	D

7	8	9	10	11	12
C	B	D	C	E	B

1. Find the measure of the angle to the nearest degree.

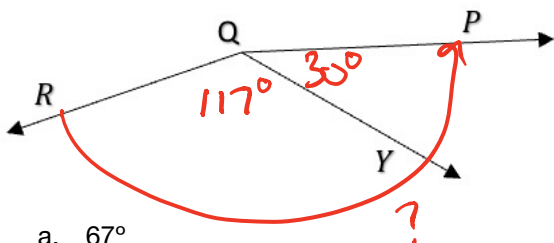
- a. 68°
- b. 72°
- c. 100°
- d. 108°**
- e. 112°



2. Classify the angle 77° as

- a. Obtuse
- b. Acute**
- c. Straight
- d. Fluid
- e. Right

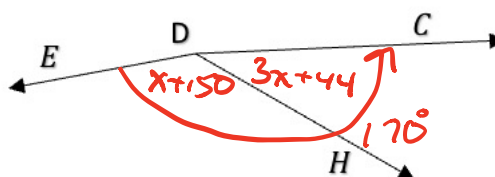
3. Find $m\angle PQR$ if $m\angle PQY = 30^\circ$ and $m\angle RQY = 117^\circ$



- a. 67°
- b. 87°
- c. 147°**
- d. 167°
- e. 187°

$m\angle RQY + m\angle YQP = m\angle RQP$
 $117 + 30 = m\angle RQP$
 $147 = m\angle RQP$

4. If $m\angle CDH = 3x + 44$, $m\angle CDE = 170^\circ$ and $m\angle HDE = x + 150$, find the value of x.



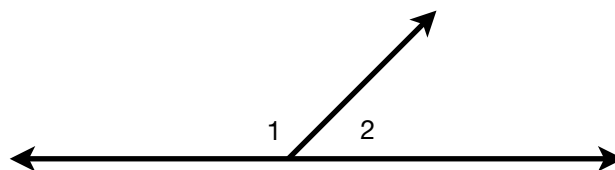
- a. -6**
- b. 0
- c. 16
- d. 32
- e. 138

$m\angle EDH + m\angle HDC = m\angle EDC$
 $(x + 150) + (3x + 44) = 170$
 $4x + 194 = 170$
 $4x = -24$
 $x = -6$

5. What does the symbol Σ mean?

- a. Sum**
- b. Difference
- c. Product
- d. Quotient
- e. Your mom

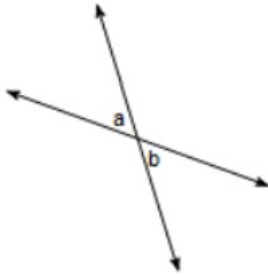
6. Which relationships about $\angle 1$ and $\angle 2$ are true in the drawing?



- I. Congruent ~~X~~
- II. Complementary ~~X~~
- III. Linear pair
- IV. Vertical angles ~~X~~
- V. Supplementary

- a. I only
- b. II only
- c. I and III only
- d. III and V only**
- e. I, II, III, IV and V

7. Which relationships are true in the drawing?



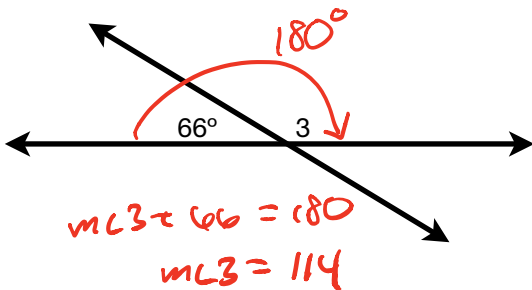
- I. Congruent ✓
- II. Complementary ✗
- III. Linear pair ✗
- IV. Vertical angles ✓
- V. Supplementary ✗

- a. I only
- b. II only
- c. I and IV only
- d. III and IV only
- e. I, II, III, IV and V

8. What does the symbol Δ mean?

- a. Sum
- b. Difference
- c. Product
- d. Quotient
- e. You dad

9. Find the measures of $\angle 3$

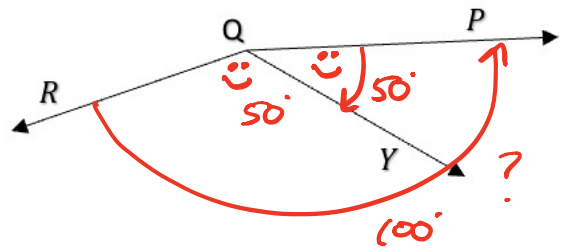


- a. 24°
- b. 34°
- c. 66°
- d. 114°
- e. 294°

10. What is the measure of the complement of $\angle X$ if the $m\angle X = 30^\circ$?

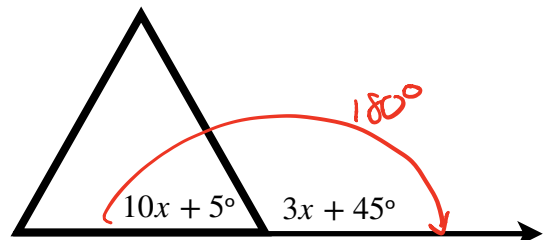
- a. 30°
- b. 45°
- c. 60°
- d. 90°
- e. 150°

11. Given that \overrightarrow{QY} is the angle bisector of $\angle RQP$, and $m\angle PQY = 50^\circ$, what is the $m\angle RQP$?



- a. 20°
- b. 40°
- c. 60°
- d. 80°
- e. 100°

12. Find the value of x.



- a. $\frac{40}{7}$
- b. 10
- c. 75
- d. 105
- e. 180

$$(10x + 5) + (3x + 45) = 180$$

$$13x + 50 = 180$$

$$13x = 130$$

$$x = 10$$