

Free Response Questions

9 points

1. Given points A(3, 4), B(-1, 5), C(1, -2), D(-6, -3)

A. Write the equation of \overleftrightarrow{CD}

Point	SLOPE	Point-Slope
(1, -2) +1	$m_{\overleftrightarrow{CD}} = \frac{\Delta y}{\Delta x}$ $= \frac{-2 - (-3)}{1 - (-6)}$ $m_{\overleftrightarrow{CD}} = \frac{1}{7} +1$	$y + 2 = \frac{1}{7}(x - 1) +1$

B. Write the equation of a line that goes through B and is parallel to \overleftrightarrow{CD}

Point	SLOPE	Point-Slope
(-1, 5) +1	$\parallel m = \frac{1}{7} +1$	$y - 5 = \frac{1}{7}(x + 1) +1$

C. Write the equation of a line that goes through B and is perpendicular to \overleftrightarrow{CD}

Point	SLOPE	Point-Slope
(-1, 5) +1	$\perp m = -7 +1$	$y - 5 = -7(x + 1) +1$

FRQ = $\frac{50}{27} =$ _____

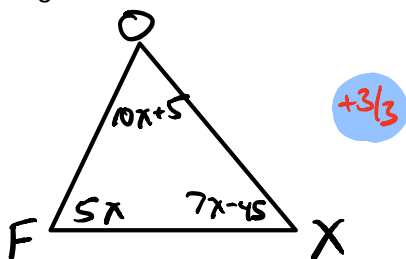
MC = $\frac{50}{15} =$ _____

Total = _____

9 points

2. Given $\triangle FOX$, with $m\angle F = 5x$, $m\angle O = 10x + 5$ and $m\angle X = 7x - 45$

A. Draw a $\triangle FOX$, labeling with all given information.



B. Find the value of x.

+1 $m\angle F + m\angle O + m\angle X = 180$

+1 $(5x) + (10x + 5) + (7x - 45) = 180$

$22x - 40 = 180$

$22x = 220$

+1 $x = 10$

C. Find the $m\angle O$

$m\angle O = 10x + 5 +1$

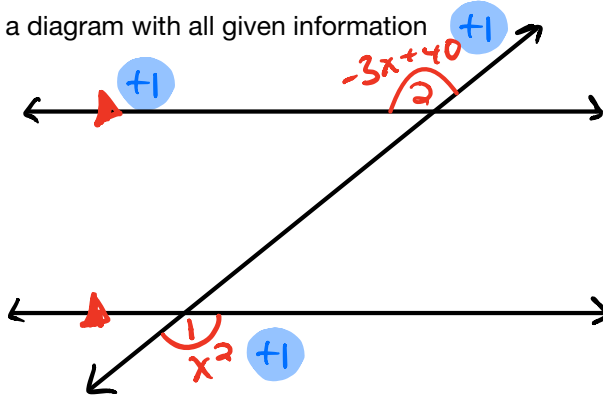
$= 10(10) + 5 +1$

$= 100 + 5$

$m\angle O = 105 +1$

- 9 points 3. Two parallel lines that are cut by a transversal forming $\angle 1$ and $\angle 2$ as a pair of alternate exterior angles.
 $m\angle 1 = x^2$ and $m\angle 2 = -3x + 40$.

A. Draw a diagram with all given information



B. Find the value(s) of x .

$$m\angle 1 = m\angle 2 \quad +1$$

$$x^2 = -3x + 40 \quad +1$$

$$x^2 + 3x - 40 = 0$$

$$(x + 8)(x - 5) = 0$$

$$\left. \begin{array}{l} x + 8 = 0 \\ x - 5 = 0 \end{array} \right\} \begin{array}{l} x = -8 \\ x = 5 \end{array} \quad +1$$

C. Find all possible values of the $m\angle 1$

$$m\angle 1 = x^2$$

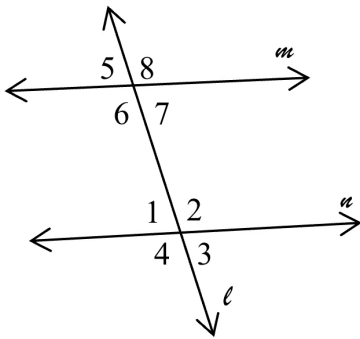
$$m\angle 1 = (-8)^2$$

$$+1 \quad m\angle 1 = 64$$

$$m\angle 1 = (5)^2$$

$$m\angle 1 = 25 \quad +1$$

Multiple Choice Section



1	2	3	4	5	6	7	8
B	F	C	G	D	D	A	B

9	10	11	12	13	14	15
B	E	q	l	m	m	t

Use the figure above to answer questions 1 - 6.

1. What type of angles are $\angle 7$ and $\angle 2$?

- A. Corresponding
- B. Consecutive interior angles**
- C. Consecutive exterior angles
- D. Alternate interior angles
- E. Alternate exterior angles
- F. Linear pair
- G. Vertical angles
- H. Cannot be determined

2. If $m \parallel n$, and $m\angle 7 = 30^\circ$, find $m\angle 2$.

- A. 15°
- B. 30°
- C. 60°
- D. 90°
- E. 120°
- F. 150°**
- G. 165°
- H. Cannot be determined

$m\angle 7 + m\angle 2 = 180$
 $30 + m\angle 2 = 180$
 $m\angle 2 = 150$

3. If $m \parallel n$, and $m\angle 7 = 60^\circ$, find $m\angle 1$.

- A. 15°
- B. 30°
- C. 60°**
- D. 90°
- E. 120°
- F. 150°
- G. 165°
- H. Cannot be determined



4. If $m \parallel n$, and $m\angle 7 = 15^\circ$, find $m\angle 2$.

- A. 15°
- B. 30°
- C. 60°
- D. 90°
- E. 120°
- F. 150°
- G. 165°**
- H. Cannot be determined

$m\angle 7 + m\angle 2 = 180$
 $15 + m\angle 2 = 180$
 $m\angle 2 = 165$

5. If $m \parallel n$, and $m\angle 8 + m\angle 2 = 200^\circ$, find $m\angle 3$.

- A. 20°
- B. 40°
- C. 60°
- D. 80°**
- E. 100°
- F. 120°
- G. 160°
- H. Cannot be determined

$m\angle 8 = m\angle 2$
 $m\angle 2 + m\angle 2 = 200$
 $2m\angle 2 = 200$
 $m\angle 2 = 100$
 $\therefore m\angle 3 = 80^\circ$

6. If $m \parallel n$, and $m \perp l$, find $m\angle 2$.

- A. 15°
- B. 30°
- C. 60°
- D. 90°**
- E. 120°
- F. 150°
- G. 165°
- H. Cannot be determined



All angles are 90°

7. Find the value of x so that $m \parallel n$

A. 10
 B. 30
 C. 50
 D. 70
 E. 90
 F. 120
 G. 180
 H. Cannot be determined

8. Find the value of x so that $m \parallel n$

A. 1
 B. 3
 C. 5
 D. 7
 E. 9
 F. 12
 G. $\frac{143}{3}$
 H. Cannot be determined

9. Find the value of x .

A. 17
 B. 32
 C. 42
 D. 48
 E. 50
 F. 58
 G. 80
 H. Cannot be determined

10. Find the value of y .

A. 15
 B. 30
 C. 45
 D. 60
 E. 75
 F. 90
 G. 105
 H. Cannot be determined

Choose which equation best matches the graphed lines.

11. $y = -\frac{2}{3}x + 4$
 12. $y = -2$
 13. $y = 2x - 4$
 14. $x = -2$
 15. $y = -3x$

