

Key

GEOMETRY CHAPTER 3 REVIEW

BE SURE TO:

*Read the directions carefully and answer what the question is asking

*If you get stuck, look back to the section in your notes the problem comes from. This is probably a hint that you should spend more time studying this section.

3.5-3.6 Slope and Linear Equations

Find the missing variable.

$$\frac{y_2 - y_1}{x_2 - x_1}$$

1) $(x, -4), (7, 6)$ when the slope is $5/2$.

$x_1 \quad y_1 \quad x_2 \quad y_2$

$$\frac{6 + 4}{7 - x} = \frac{5}{2}$$

$$5(7 - x) = 20$$

$$35 - 5x = 20$$

$$-5x = -15$$

$$\frac{-5x}{-5} = \frac{-15}{-5}$$

$$\boxed{x = 3}$$

2) $(-22, -4), (-12, y)$ when the slope is $3/5$.

$$\frac{y + 4}{-12 + 22} = \frac{3}{5}$$

$$\frac{y + 4}{10} = \frac{3}{5}$$

$$5(y + 4) = 30$$

$$5y + 20 = 30$$

$$-20 \quad -20$$

$$\frac{5y}{5} = \frac{10}{5} \quad \boxed{y = 2}$$

Write the equation of the line in slope-intercept form passing through the given points.

3) $(-2, -3)$ and $(-4, 3)$

$$m = \frac{3 + 3}{-4 + 2} = \frac{6}{-2} = -3$$

$$y = mx + b$$

$$3 = -3(-4) + b$$

$$3 = 12 + b$$

$$-12 \quad -12$$

$$\frac{-9}{-9} = \frac{b}{-9}$$

$$\boxed{y = -3x - 9}$$

4) $(-5, -5)$ and $(-3, -1)$

$$m = \frac{-1 + 5}{-3 + 5} = \frac{4}{2} = 2$$

$$y = mx + b$$

$$-5 = 2(-5) + b$$

$$-5 = -10 + b$$

$$+10 \quad +10$$

$$\frac{5}{5} = \frac{b}{5}$$

$$\boxed{y = 2x + 5}$$

5) What is the equation of the line with slope 8 through the point $(-4, -5)$.

$$y = mx + b$$

$$-5 = 8(-4) + b$$

$$-5 = -32 + b$$

$$+32 \quad +32$$

$$\frac{27}{27} = \frac{b}{27}$$

$$\boxed{y = 8x + 27}$$

$m = 8$

Write the equation of the line through the given point and parallel to the given line:

→ same slope

6) $y = -\frac{7}{3}x + 3; (-9, 5)$

$$y = mx + b$$

$$5 = -\frac{7}{3}(-9) + b$$

$$5 = 21 + b$$

$$-21 \quad -21$$

$$\frac{-16}{-16} = \frac{b}{-16}$$

$$\boxed{y = -\frac{7}{3}x - 16}$$

7) $y = 3x + 1; (5, 4)$

$$y = mx + b$$

$$4 = 3(5) + b$$

$$4 = 15 + b$$

$$-15 \quad -15$$

$$\frac{-11}{-11} = \frac{b}{-11}$$

$$\boxed{y = 3x - 11}$$

Write the equation of the line through the given point and perpendicular to the given line:

→ opposite reciprocal

8) $y = \frac{1}{2}x + 2; (-3, -7)$

$$\perp m = -2$$

$$y = mx + b$$

$$-7 = -2(-3) + b$$

$$-7 = 6 + b$$

$$-6 \quad -6$$

$$\frac{-13}{-13} = \frac{b}{-13}$$

$$\boxed{y = -2x - 13}$$

9) $y = -\frac{3}{4}x - 3; (5, 3)$

$$m = \frac{4}{3}$$

$$y = mx + b$$

$$3 = \frac{4}{3}(5) + b$$

$$3 = \frac{20}{3} + b$$

$$\frac{9}{3} = \frac{20}{3} + b$$

$$-\frac{20}{3} \quad -\frac{20}{3}$$

$$\frac{-11}{3} = b$$

$$\boxed{y = \frac{4}{3}x - \frac{11}{3}}$$

3.6 Continued

Key

Write the equation of the line that best models the table.

12)

X	Y
1	-3
3	1
5	5
7	9

$(x_1, y_1) (x_2, y_2)$
 $(1, -3) (3, 1)$

$\frac{1+3}{3-1} = \frac{4}{2} = 2 = m$

$y = mx + b$

$1 = 2(3) + b$

$1 = 6 + b$

$-5 = b$

$y = 2x - 5$

13)

x	y
3	0.45
5	0.75
7	1.05
10	1.50

Pick 2 points.

$(x_1, y_1) (x_2, y_2)$
 $(7, .45) (5, .75)$

$\frac{.75 - .45}{5 - 7} = \frac{.3}{-2} = -.15$

$y = .15x + b$

$y = .15x + b$

$b = 0$

14) Circle the table that represents the function $y = 4x + 3$?

x	y
0	3
1	4
2	8
3	12

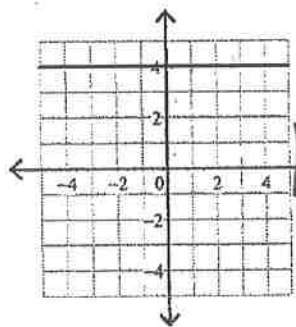
x	y
4	11
5	12
6	13
7	14

x	y
0	3
2	11
4	19
6	27

x	y
1	7
2	11
3	17
4	21

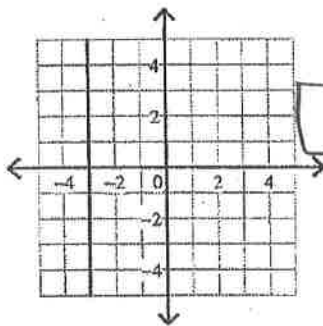
Write the equation of each line.

15.



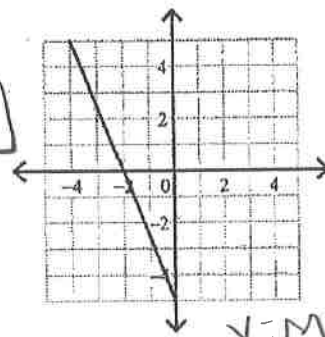
$y = mx + b$
 $y = 4$

16.



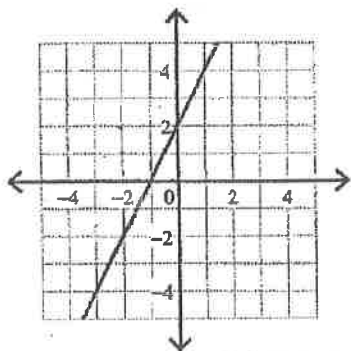
$x = -3$

17.



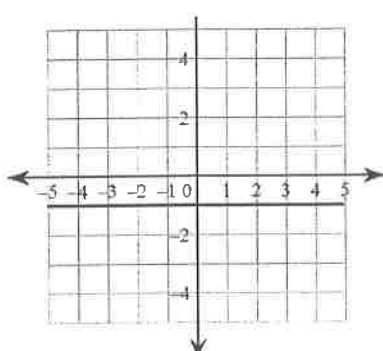
$y = mx + b$
 $y = \frac{5}{2}x - 5$

18.



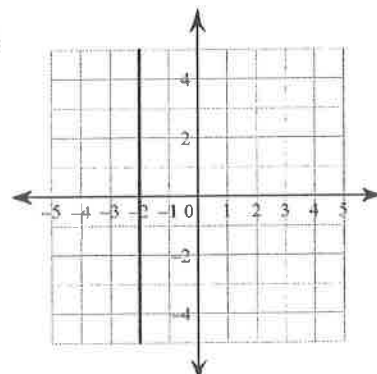
$y = mx + b$
 $y = 2x + 2$

19.



$y = -1$

20.

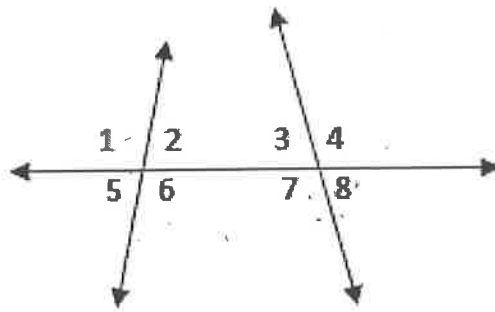


$x = -2$

3.2 - 3.3 - Parallel Lines and Angle Pairs.

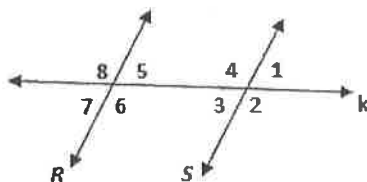
Match the correct angle pair with the given set of angles.

- A. Alternate Interior
- B. Same Side Interior
- C. Alternate Exterior
- D. Corresponding
- E. Vertical
- F. Linear Pair
- G. No Relationship



- 21. $\angle 1, \angle 8$ C
- 22. $\angle 3, \angle 6$ a
- 23. $\angle 3, \angle 7$ f
- 24. $\angle 1, \angle 6$ e
- 25. $\angle 5, \angle 8$ g
- 26. $\angle 2, \angle 4$ d
- 27. $\angle 6, \angle 7$ b

Fill in the Blanks.



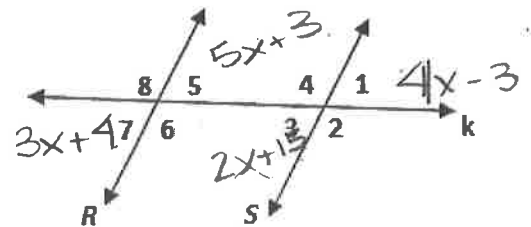
by (what theorem?)

- 28. If R is parallel to S, then the corresponding angles are congruent by Corr. \angle 's Postulate.
- 29. If R is parallel to S, then alternate interior angles are congruent by Alt Int \angle 's Thm.
- 30. If R is parallel to S, then same side interior angles are Supplementary by Same Side Int \angle 's Thm.
- 31. If R is parallel to S, then the alternate exterior angles are congruent by Alt. Ext \angle 's Thm.
- 32. If $\angle 2$ and $\angle 6$ are congruent, then R is Parallel to S by Converse of Corr \angle 's Post.
- 33. If $\angle 3$ and $\angle 6$ are Supplementary, then R is Parallel to S by Converse of Same Side Int \angle 's Thm.
- 34. If $\angle 1$ and $\angle 7$ are congruent, then R is Parallel to S by Converse of Alt Ext \angle 's Thm.
- 35. If $\angle 3$ and $\angle 5$ are congruent, then R is Parallel to S by converse of alt int \angle 's Thm.

36. Given $\angle 1 = 4x - 3$ and $\angle 7 = 3x + 4$, find the value of x that makes R and S parallel lines.

$$\begin{aligned}
 4x - 3 &= 3x + 4 \\
 +3 & \quad +3 \\
 4x &= 3x + 7 \\
 -3x & \quad -3x \\
 x &= 7
 \end{aligned}$$

$x = 7$



37. If R and S are parallel lines and $\angle 3 = 2x + 15$ and $\angle 5 = 5x + 3$, find the measure of $\angle 2$.

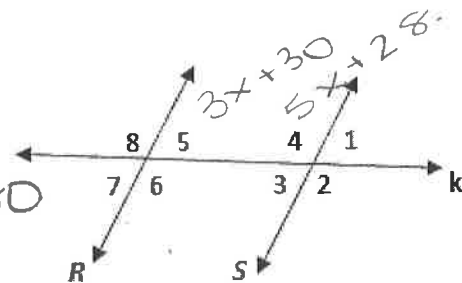
$$\begin{aligned}
 2(4) + 15 \\
 8 + 15 \\
 m\angle 3 = 23
 \end{aligned}$$

$m\angle 2 = 180 - 23$
 $m\angle 2 = 157^\circ$

$$\begin{aligned}
 2x + 15 &= 5x + 3 \\
 -3 & \quad -3 \\
 2x + 12 &= 5x \\
 -2x & \quad -2x \\
 12 &= 3x \\
 \frac{12}{3} & \quad \frac{3x}{3} \\
 4 &= x
 \end{aligned}$$

38. If R and S are parallel lines and $\angle 5 = 3x + 30$ and $\angle 4 = 5x + 22$,
find the measure of $\angle 2$.

$$\begin{aligned}
 3x + 30 + 5x + 22 &= 180 \\
 8x + 52 &= 180 \\
 -52 &\quad -52 \\
 \hline
 8x &= 128 \\
 \frac{8x}{8} &= \frac{128}{8} \quad x = 16
 \end{aligned}$$

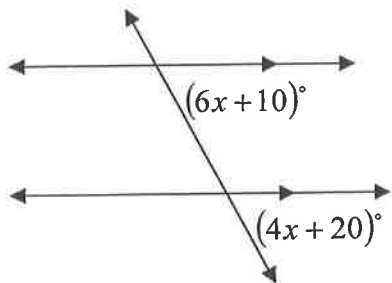


$$m\angle 4 = 5(16) + 22 = 102^\circ$$

$$m\angle 2 = m\angle 4 = 102^\circ$$

Find the value of all missing variables.

39.

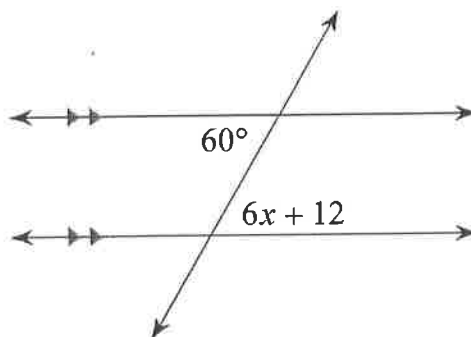


$$\begin{aligned}
 6x + 10 &= 4x + 20 \\
 -4x &\quad -4x \\
 \hline
 2x + 10 &= 20
 \end{aligned}$$

$$\begin{aligned}
 2x + 10 &= 20 \\
 -10 &\quad -10 \\
 \hline
 2x &= 10
 \end{aligned}$$

$$x = 5$$

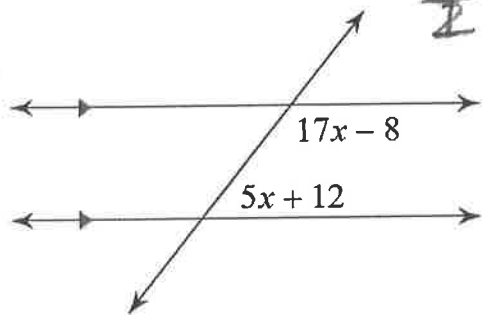
40.



$$\begin{aligned}
 60 &= 6x + 12 \\
 -12 &\quad -12 \\
 \hline
 48 &= 6x
 \end{aligned}$$

$$\frac{48}{6} = \frac{6x}{6} \quad x = 8$$

41.



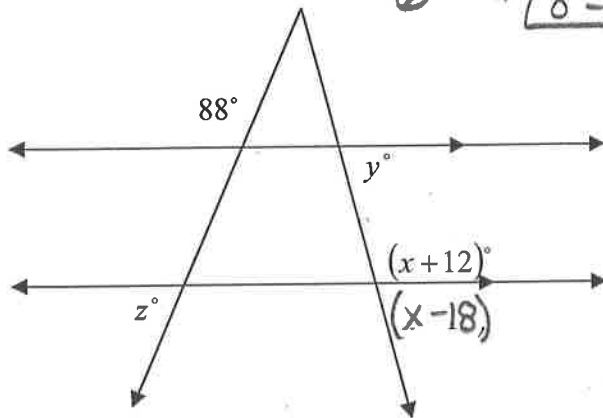
$$17x - 8 + 5x + 12 = 180$$

$$22x + 4 = 180$$

$$\begin{aligned}
 22x &= 176 \\
 \frac{22x}{22} &= \frac{176}{22}
 \end{aligned}$$

$$x = 8$$

42.



$$(x + 12) + (x - 18) = 180$$

$$\begin{aligned}
 2x - 6 &= 180 \\
 +6 &\quad +6 \\
 \hline
 2x &= 186
 \end{aligned}$$

$$\frac{2x}{2} = \frac{186}{2}$$

$$x = 93$$

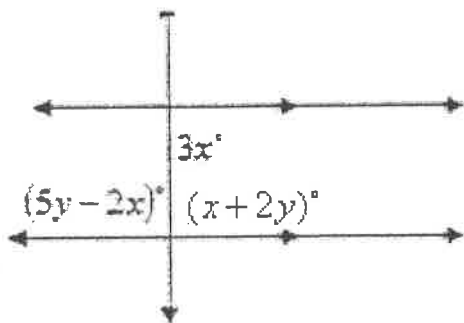
$$y = x - 18$$

$$y = 93 - 18$$

$$y = 75$$

$$z = 180 - 88$$

$$z = 92$$



$$\begin{array}{r} 5y - 2x = 3x \\ -3x \quad -3x \\ \hline \end{array}$$

$$3x + x + 2y = 180$$

$$4x + 2y = 180$$

$$5y - 5x = 0$$

↓ Rearrange

$$-2(-5x + 5y = 0) \rightarrow 10x - 10y = 0$$

$$5(4x + 2y = 180) \rightarrow 20x + 10y = 900$$

$$\begin{array}{r} 30x = 900 \\ \hline 30 \quad 30 \end{array}$$

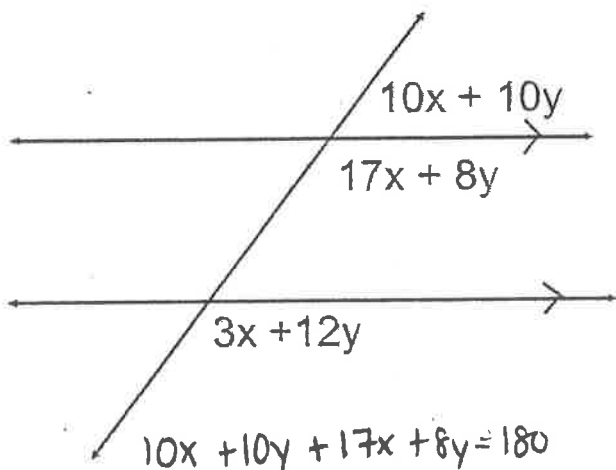
$$\boxed{x = 30}$$

$$4(30) + 2y = 180$$

$$\begin{array}{r} 120 + 2y = 180 \\ -120 \quad -120 \\ \hline \end{array}$$

$$\frac{2y}{2} = \frac{60}{2}$$

$$\boxed{y = 30}$$



$$10x + 10y + 17x + 8y = 180$$

$$27x + 18y = 180$$

$$\begin{array}{r} 17x + 8y = 3x + 12y \\ -3x \quad -3x \\ \hline \end{array}$$

$$\begin{array}{r} 14x + 8y = 12y \\ -12y \quad -12y \\ \hline \end{array}$$

$$14x - 4y = 0$$

$$9(14x - 4y = 0) \rightarrow 126x - 36y = 0$$

$$2(27x + 18y = 180) \rightarrow 54x + 36y = 360$$

$$\begin{array}{r} 180x = 360 \\ \hline 180 \quad 180 \end{array}$$

$$\boxed{x = 2}$$

$$14(2) - 4y = 0$$

$$28 - 4y = 0$$

$$-4y = -28$$

$$\boxed{y = 7}$$

Name: _____

(KEY)

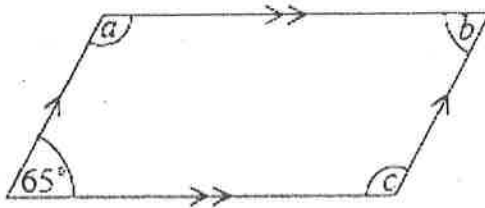
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Chapter 3 - Missing Angles Worksheet

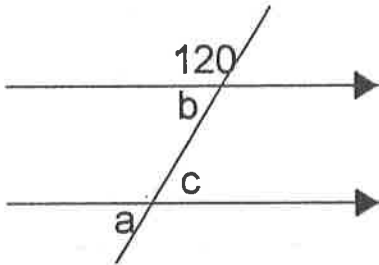
Find all missing angles.

1. Find the size of the three unknown angles in the parallelogram opposite:



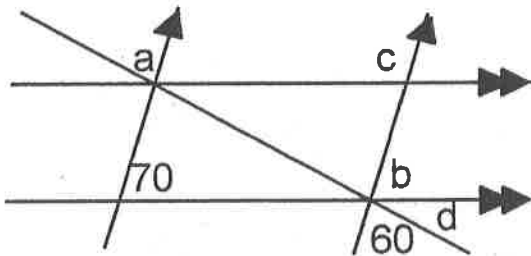
$a = 115^\circ$
$b = 65^\circ$
$c = 115^\circ$

- 2.



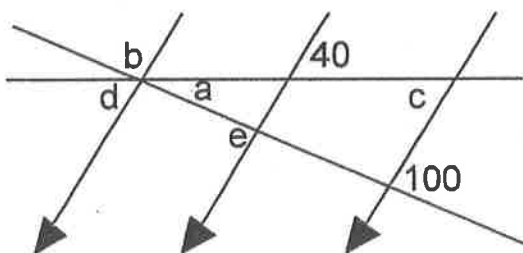
$a = 60^\circ$
$b = 60^\circ$
$c = 60^\circ$

- 3.



$a = 60^\circ$
$b = 70^\circ$
$c = 110^\circ$
$d = 50^\circ$

- 4.



$a = 60^\circ$
$b = 80^\circ$
$c = 40^\circ$
$d = 40^\circ$
$e = 100^\circ$