

Test Review Ch. 3

Use the figure at the right to answer the following 3 questions.

1. Name all planes that intersect plane OPT.

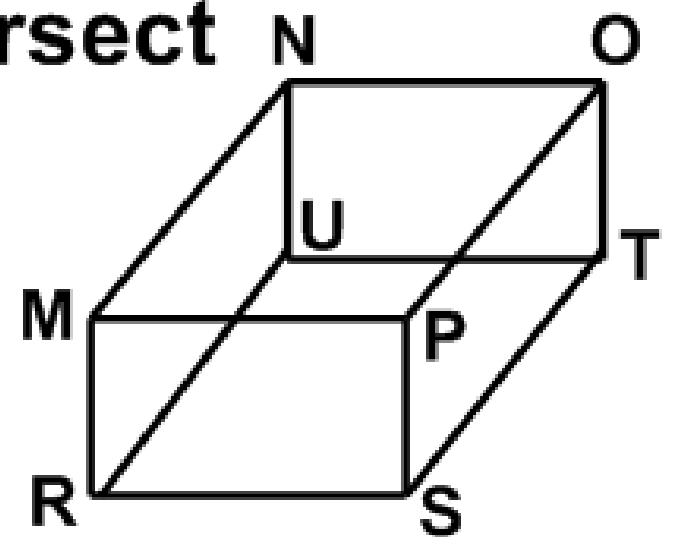
PMR, PMO, STU, ONU

2. Name all segments that are parallel to \overline{NU} .

\overline{OT} , \overline{PS} , \overline{MR}

3. Name two segments that are skew to \overline{PS} .

\overline{UR} , \overline{NM} , \overline{ON} , \overline{UT} (any 2 of those)



In the figure, $m\angle 7 = 100^\circ$, and $s \parallel t \parallel u$. Find the measure of each given angle.

4. $m\angle 9 = 100^\circ$

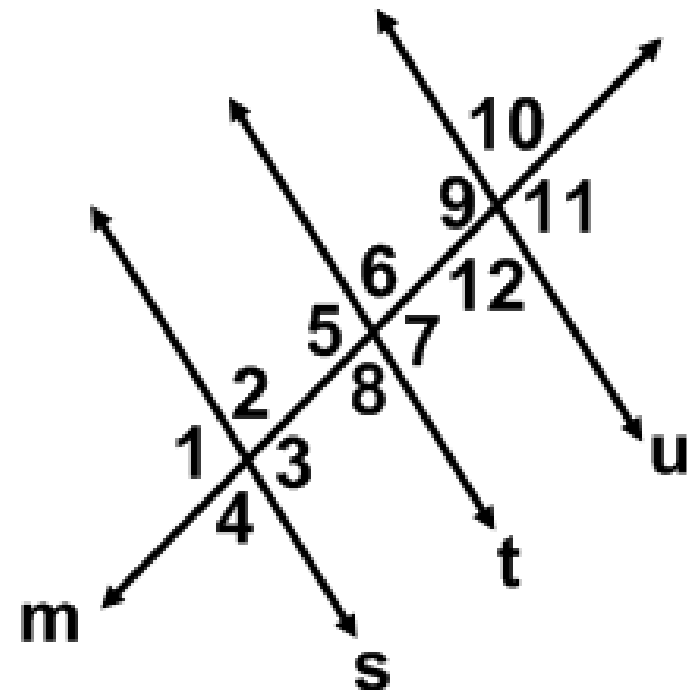
5. $m\angle 8 = 80^\circ$

6. $m\angle 5 = 100^\circ$

7. $m\angle 6 = 80^\circ$

8. $m\angle 2 = 80^\circ$

9. $m\angle 11 = 100^\circ$



Determine which two lines, if any, are parallel according to each angle relationship. Use the figure at the right.

10. $\angle 10 \cong \angle 16$ *a || b*

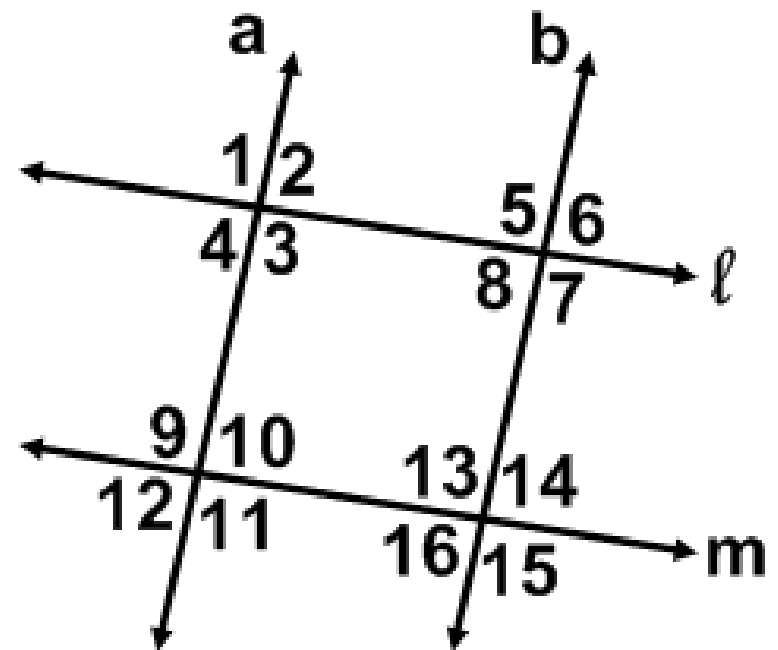
11. $m\angle 7 + m\angle 14 = 180$ *l || m*

12. $\angle 1 \cong \angle 9$ *l || m*

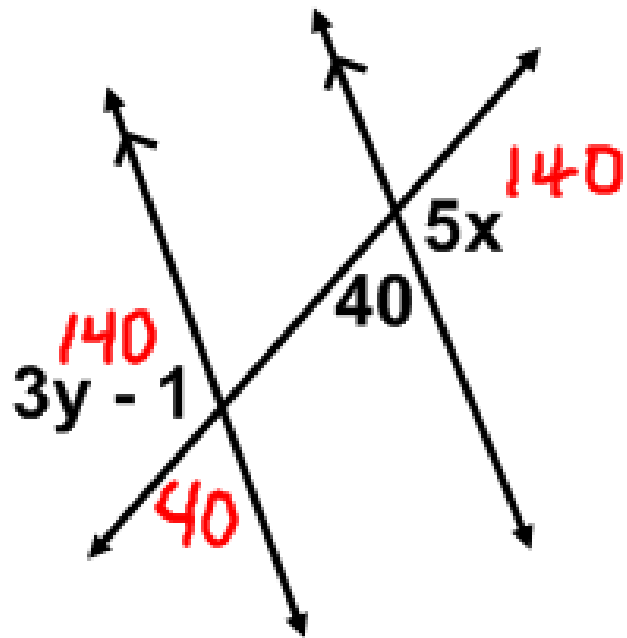
13. $\angle 6 \cong \angle 13$ *none*

14. $\angle 4 \cong \angle 6$ *a || b*

15. $\angle 2 \cong \angle 11$ *none*



16.



$$\begin{aligned} x &= 28 \\ y &= 47 \end{aligned}$$

$$\begin{aligned} 3y - 1 &= 140 \\ +1 & \quad +1 \end{aligned}$$

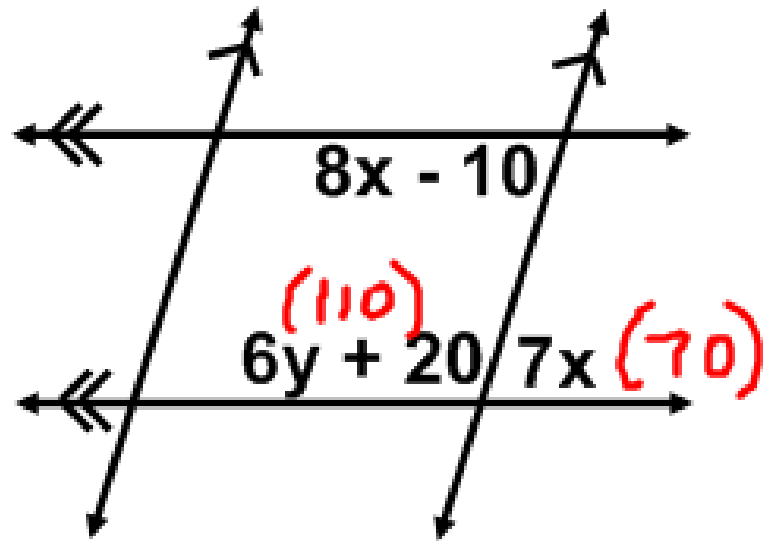
$$\begin{aligned} 3y &= 141 \\ \frac{3y}{3} &= \frac{141}{3} \end{aligned}$$

$$y = 47$$

$$\begin{aligned} 5x &= 140 \\ \frac{5x}{5} &= \frac{140}{5} \end{aligned}$$

$$x = 28$$

17.



$$\begin{aligned} x &= 10 \\ y &= 15 \end{aligned}$$

$$\begin{array}{r} 8x - 10 = 7x \\ -8x \quad -8x \\ \hline -10 = -x \end{array}$$

$$-10 = -x$$

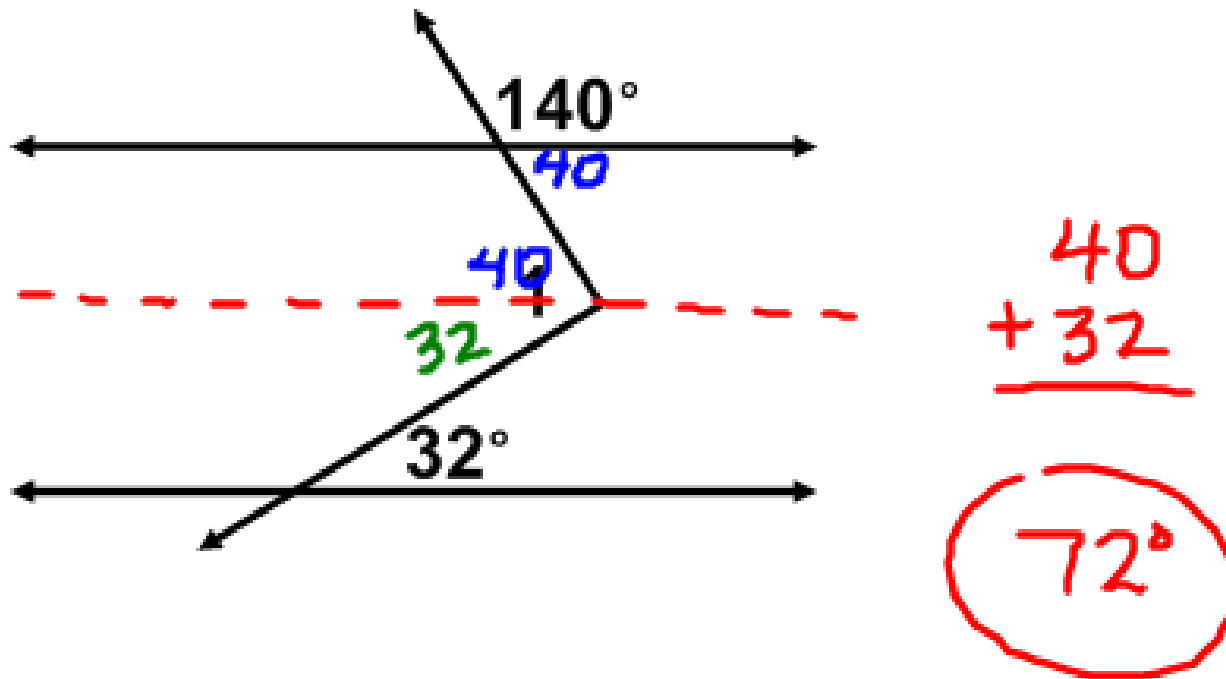
$$10 = x$$

$$\begin{array}{r} 6y + 20 = 110 \\ -20 \quad -20 \\ \hline 6y = 90 \end{array}$$

$$\frac{6y}{6} = \frac{90}{6}$$

$$y = 15$$

18. Find $m\angle 1$ in the following picture.



Determine the slope of the line that contains the given points.

19. A(-4, 4) B(0, 2)

$$m = \frac{y - y_1}{x - x_1}$$

$$m = \frac{4 - 2}{-4 - 0} = \frac{2}{-4} = -\frac{1}{2}$$

20. G(4, -2) H(5, 3)

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

Determine whether \overleftrightarrow{KM} and \overleftrightarrow{ST} are parallel, perpendicular, or neither.

21. $K(-5, 2)$ $M(5, 4)$ $S(-3, 6)$ $T(3, -4)$

$$m_{\overleftrightarrow{KM}} = \frac{2-4}{-5-5} = \frac{-2}{-10} = \frac{1}{5}$$
$$m_{\overleftrightarrow{ST}} = \frac{6-(-4)}{-3-3} = \frac{10}{-6} = -\frac{5}{3}$$

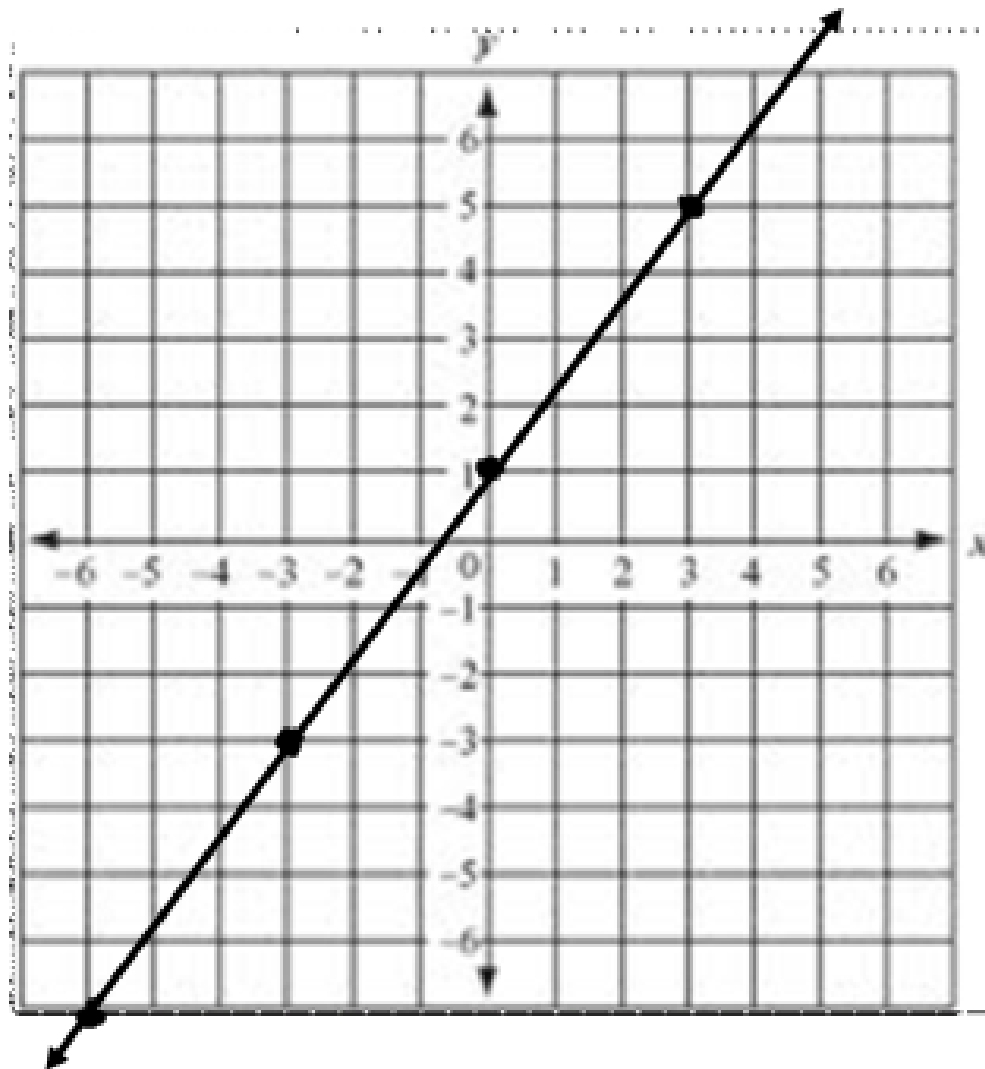
> neither

22. $K(-4, 10)$ $M(2, -8)$ $S(1, 2)$ $T(4, -7)$

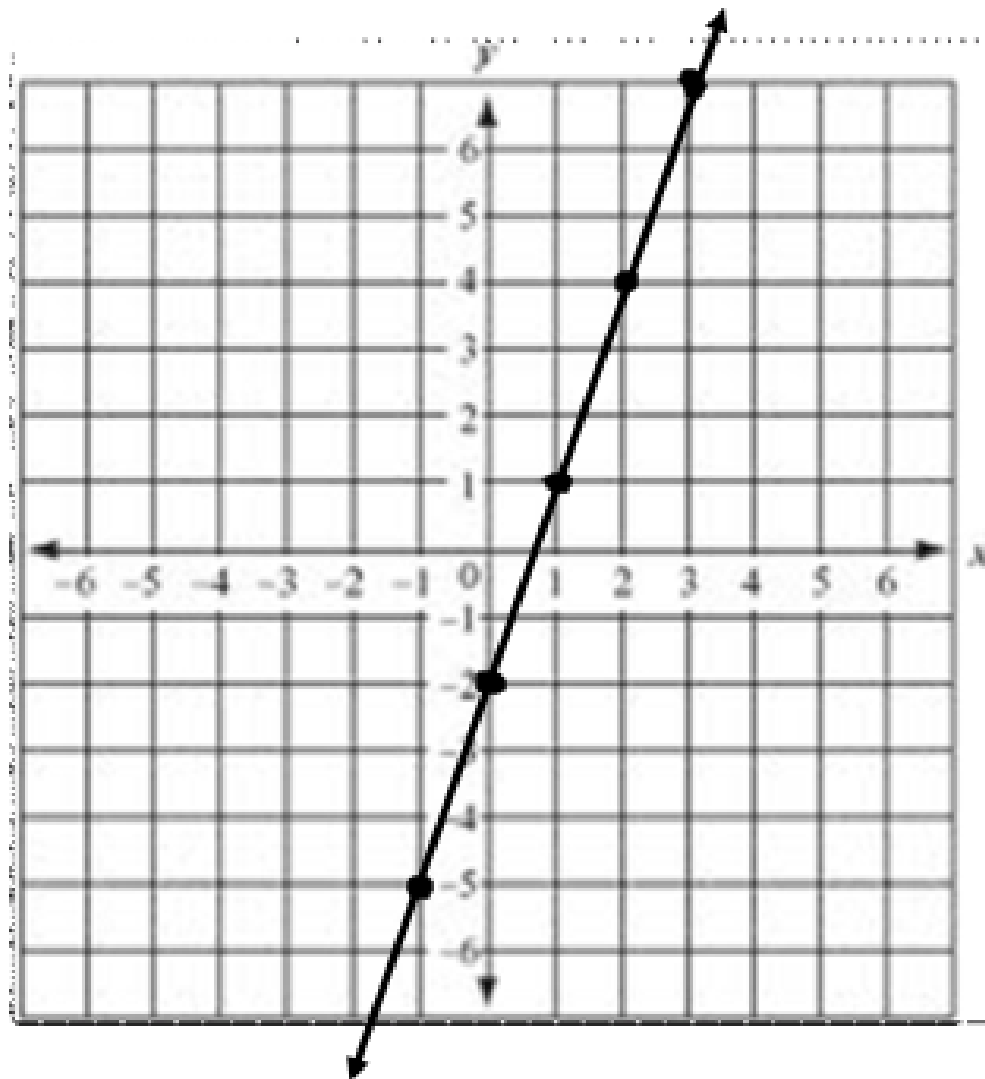
$$m_{\overleftrightarrow{KM}} = \frac{10-(-8)}{-4-2} = \frac{18}{-6} = -3$$
$$m_{\overleftrightarrow{ST}} = \frac{2-(-7)}{1-4} = \frac{9}{-3} = -3$$

> parallel

23. slope $\frac{4}{3}$, contains P(-3, -3)



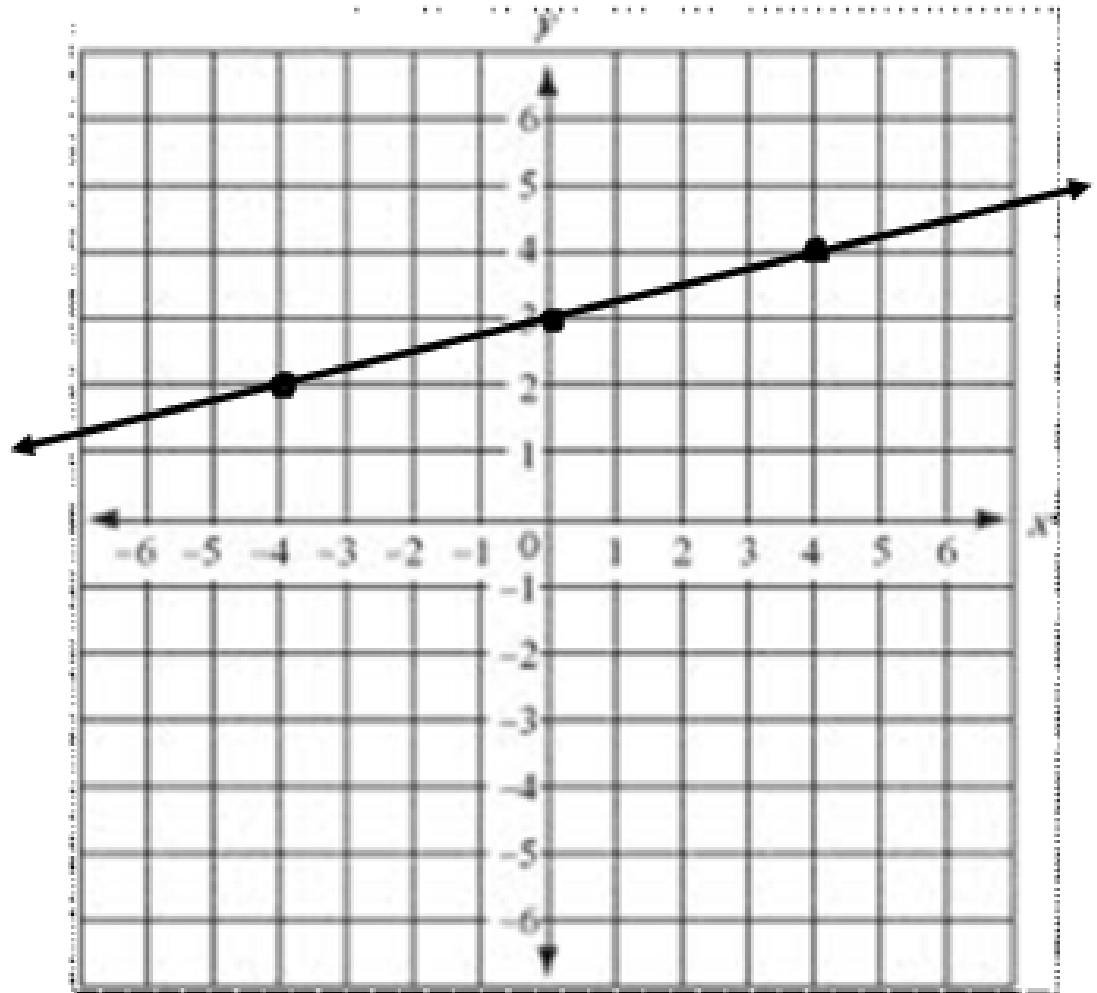
24. $y = 3x - 2$



25. contains B(-4, 2), parallel to \overleftrightarrow{FG}
with F(0, -3) and G(4, -2)

$$m_{\overleftrightarrow{FG}} = \frac{-3 - (-2)}{0 - 4} = \frac{-1}{-4} = \frac{1}{4}$$

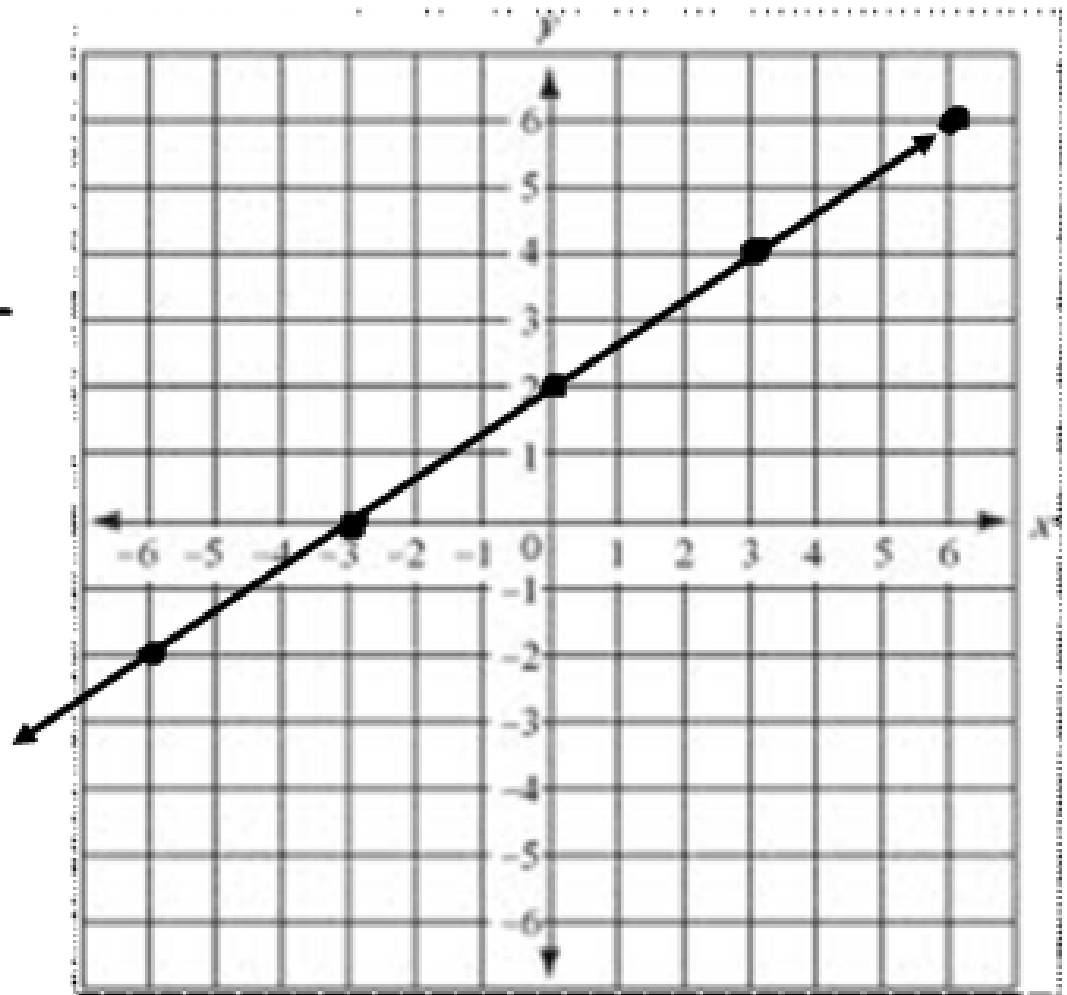
m is same



26. contains $Z(-3, 0)$, perpendicular to \overleftrightarrow{EK} with $E(-2, 4)$ and $K(2, -2)$

$$m_{\overleftrightarrow{EK}} = \frac{4 - (-2)}{-2 - 2} = \frac{6}{-4} = -\frac{3}{2}$$

$$\perp m = \frac{2}{3}$$



27. $m = 4$, y -intercept 7

$$y = mx + b$$

$$y = 4x + 7$$

28. $m = 3$, contains $(2, -3)$

$$y - y_1 = m(x - x_1)$$

$$y - -3 = 3(x - 2)$$

$$y + 3 = 3(x - 2)$$

$$y + \cancel{3} = 3x - \underset{-3}{6}$$

$$y = 3x - 9$$

29. passes through (2, -4) and (5, 8)

$$m = \frac{y - y_1}{x - x_1}$$

$$m = \frac{-4 - 8}{2 - 5} = \frac{-12}{-3} = 4$$

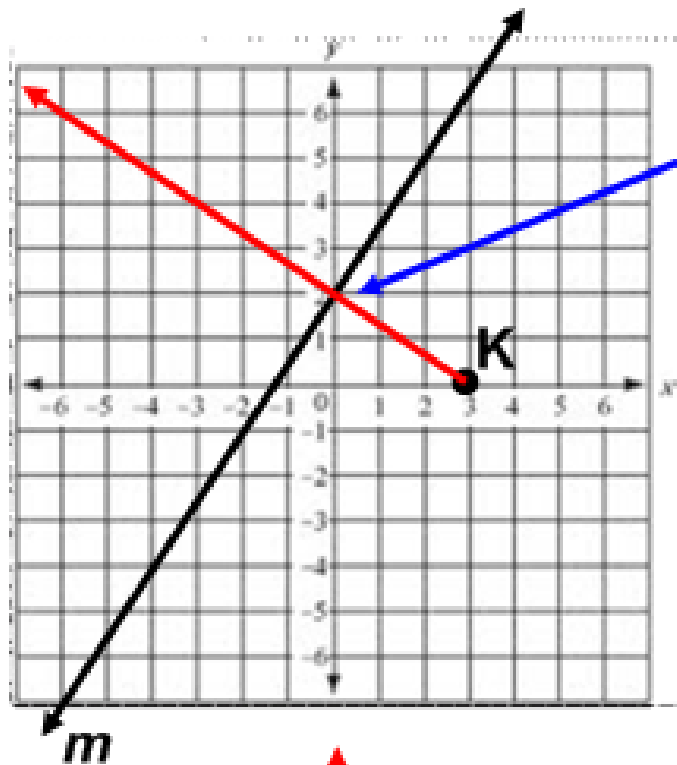
$$y - y_1 = m(x - x_1)$$

$$y - 8 = 4(x - 5)$$

$$\cancel{y} - \cancel{8} = 4x - 20 + 8$$

$$y = 4x - 12$$

30. Construct a line perpendicular to m through K . Then find the distance from K to m .



use $K(3, 0)$ and point of intersection $(0, 2)$

$$d = \sqrt{(x-x)^2 + (y-y)^2}$$

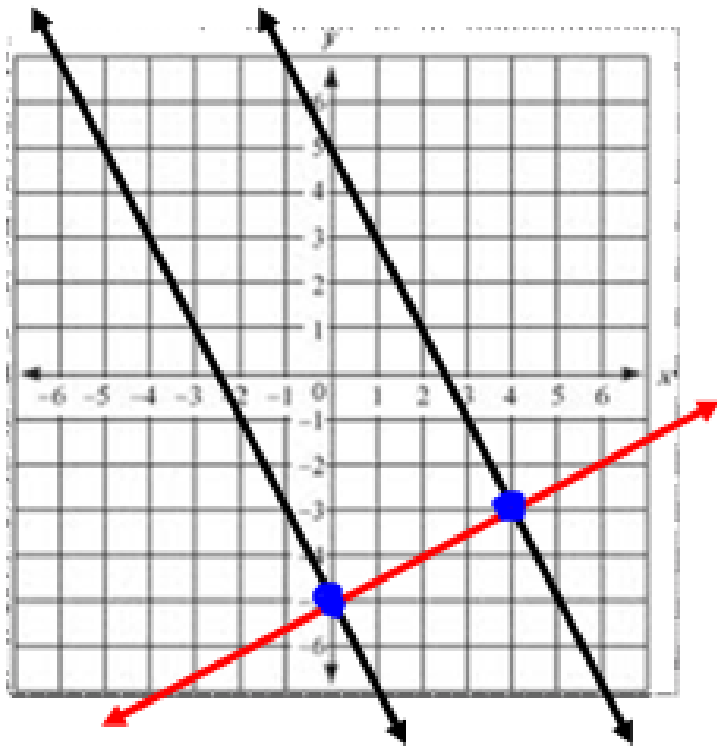
$$d = \sqrt{(3-0)^2 + (0-2)^2}$$

$$= \sqrt{9+4}$$

$$= \sqrt{13} \approx 3.61$$

(need to use compass to construct perpendicular)

30. Find the distance between the parallel lines $y = -2x + 5$ and $y = -2x - 5$.



\perp line $m = -2$
 $\perp m = \frac{1}{2}$
 $y = \frac{1}{2}x - 5$

Graph it. $(0, -5)$ $(4, -3)$

$$d = \sqrt{(0-4)^2 + (-5-(-3))^2}$$

$$= \sqrt{16 + 4}$$

$$= \sqrt{20} \approx 4.47$$