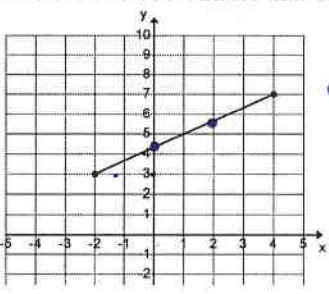
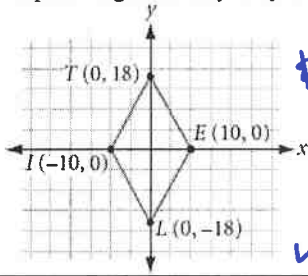


1.	<p>Find the midpoint of a segment with endpoints $(-8, 5)$ and $(3, -6)$</p> $\left(\frac{3+(-8)}{2}, \frac{-6+5}{2}\right) = \left(\frac{-5}{2}, \frac{-1}{2}\right)$
2.	<p>Find the slope of the line containing $(-8, 5)$ and $(3, -6)$</p> $m = \frac{-6-5}{3-(-8)} = \frac{-11}{5}$
3.	<p>Write the equation for a line that goes through $(6, 6)$ and is parallel to \overline{AB} if $A=(1, 3)$ and $B=(4, -2)$</p> $m_{AB} = \frac{-2-3}{4-1} = \frac{-5}{3} = \frac{5}{3}$ $m_L = m_{AB} \Rightarrow m_L = \frac{5}{3}$ $y = mx + b \Rightarrow y = \frac{5}{3}x + b$ <p>Substituting point $(6, 6)$:</p> $6 = \frac{5}{3}(6) + b \Rightarrow 6 = 10 + b \Rightarrow b = -4$ $y = \frac{5}{3}x - 4$
4.	<p>Solve the following for y. $2y - 5(8 - y) = 2$</p> $2y - 40 + 5y = 2$ $7y - 40 = 2$ $7y = 42$ $y = 6$
5.	<p>Write the equation for a line if the slope is $\frac{5}{7}$ and the line passes through the point $(0, -11)$</p> $m = \frac{5}{7}$ $y = mx + b$ $-11 = \frac{5}{7}(0) + b \Rightarrow b = -11$ $y = \frac{5}{7}x - 11$
6.	<p>Find the coordinate where these two lines intersect: <u>Substitution example</u></p> $\begin{cases} 2x + 3y = 9 \\ 5x - y = 14 \end{cases}$ $y = 5x - 14$ $2x + 3(5x - 14) = 9$ $2x + 15x - 42 = 9$ $17x = 51$ $x = 3$ $2(3) + 3y = 9$ $6 + 3y = 9$ $3y = 3 \Rightarrow y = 1$ <p>Intersection point: $(3, 1)$</p>
7.	<p>Find the two coordinates that divide the segment into thirds:</p>  <p>Endpoints: $(-2, 3)$ & $(4, 7)$</p> <p>$\Delta x = 2$, $\Delta y = 4$</p> <p>add x's & y's & divide by 3</p> <p>Point 1: $(0, 4\frac{1}{3})$</p> <p>Point 2: $(2, 5\frac{2}{3})$</p>
8.	<p>Find x, if the slope of a segment is $-\frac{2}{3}$ and the endpoints are $(-5, 3)$ and $(x, 7)$ ← use slope formula</p> $m = -\frac{2}{3}$ $\frac{7-3}{x-(-5)} = -\frac{2}{3}$ $\frac{4}{x+5} = -\frac{2}{3}$ $12 = -2(x+5)$ $12 = -2x - 10$ $22 = -2x$ $-11 = x$

Review Wednesday

9. Explain algebraically why TILE is a parallelogram.



T I || E L
T E || I L

$$m_{TI} = \frac{18-0}{0-(-10)} = \frac{18}{10}$$

$$m_{EL} = \frac{0-(-18)}{10-0} = \frac{18}{10}$$

$$m_{TE} = \frac{18-0}{0-(10)} = -\frac{18}{10}$$

$$m_{IL} = \frac{-18-0}{0-(10)} = -\frac{18}{10}$$

✓

10. Solve the following for w.

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

Common denom.

$$\frac{3w}{6} - \frac{2}{6} = \frac{3w+2}{6}$$

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

$$4(3w-2) = 6(w+3)$$

$$12w-8 = 6w+18$$

$$6w-8 = 18$$

$$6w = 26 \quad w = 4\frac{1}{3}$$

11. Find the equation of the line that contains $(-8, 5)$ and $(3, -6)$. (please write in $y = mx + b$ form)

$$m = \frac{-6-5}{3-(-8)} = \frac{-11}{11} = -1$$

$$y = 5$$

$$x = 8$$

$$y = mx + b$$

$$5 = -1(-8) + b$$

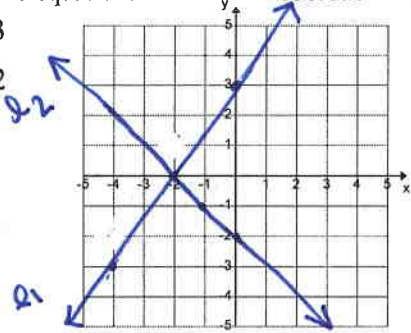
$$5 = 8 + b \quad b = -3$$

$$y = mx + b$$

$$y = -1x - 3$$

12. Graph these two equations and find the coordinate where they intersect:

$$1 \begin{cases} y = \frac{3}{2}x + 3 \\ y = -x - 2 \end{cases}$$



$(-2, 0)$

13. Find x, if the slope of a segment is $-\frac{2}{3}$ and the endpoints are $(-5, 3)$ and $(x, 8)$

$$m = -\frac{2}{3} = \frac{8-3}{x-(-5)} = \frac{5}{x+5} = -\frac{2}{3}$$

$$2(x+5) = 15$$

$$2x+10 = 15$$

$$2x = 5$$

$$x = \frac{5}{2}$$

14. For the equation $y = -\frac{4}{3}x - 7$ What is the parallel slope: $-\frac{4}{3}$ What is the perpendicular slope: $+\frac{3}{4}$

Explain how you answered:

parallel \rightarrow same slope perpendicular \rightarrow opp. Reciprocal

15. If the midpoint is $(4, 5)$ and one endpoint is $(-1, -3)$ what is the other endpoint?

$$m = \left(\frac{x_1+x_2}{2}, \frac{y_1+y_2}{2} \right) = (4, 5)$$

$$\frac{-1+x_2}{2} = 4 \quad -1+x_2 = 8 \quad x_2 = 9$$

$$\frac{-3+y_2}{2} = 5 \quad -3+y_2 = 10 \quad y_2 = 13$$

$(9, 13)$