PAP Geometry CBA#1A Review

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Name: Key

1. If the slope of $\overline{EF}$ is $\frac{2}{3}$ and E(2, 2) and F(x, 7). Find x

$\frac{5}{x-2} = \frac{2}{3}$

$15 = 2(x-2)$

$15 = 2x - 4$

$19 = 2x$

$x = 9.5$

2. Write an equation of the line that passes through the given point P and has the given slope m.

A) P(5,4), m = 4

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

$y-4 = 4x-20$

$y = 4x-16$

B) P(0,-3), m = 1 6

$y+3 = 16(x-0)$

$y = 16x-3$

3. Write an equation of the line that passes through the point P and is perpendicular to the line with the given equation.

A) P(3,2), y = 3x + 1 $m = -\frac{1}{3}$

$y-2 = -\frac{1}{3}(x-3)$

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

$y = -\frac{1}{3}x+3$

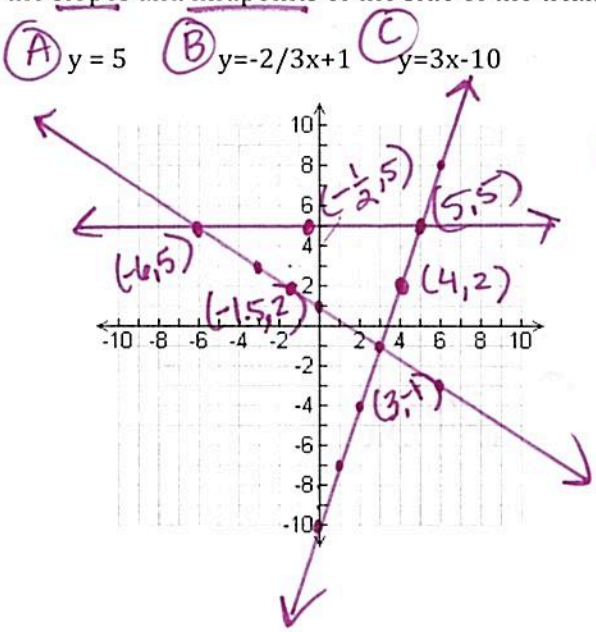
B) P(-8, -2), y = 4x – 3 $m = -\frac{1}{4}$

$y+2 = -\frac{1}{4}(x+8)$

$y+2 = -\frac{1}{4}x-2$

$y = -\frac{1}{4}x-4$

4. Graph each set of lines to form a triangle. Determine the vertices of the triangle from your graph. Find the equation of the perpendicular bisector of each side. (Hint: In order to find the perpendicular bisector for each side, you'll first need to find the slopes and midpoints of the side of the triangles.)



A) $x = -\frac{1}{2}$

B) $m = \frac{3}{2}$ (-1.5, 2)

$y-2 = \frac{3}{2}(x+1.5)$

$y-2 = \frac{3}{2}x + 2.25$

$+2 \qquad +2$

$y = \frac{3}{2}x + 4.25$

$y = \frac{3}{2}x + \frac{17}{4}$

C) $m = -\frac{1}{3}$

(4, 2)

$y-2 = -\frac{1}{3}(x-4)$

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

$+2 \qquad +2$

$y = -\frac{1}{3}x + \frac{10}{3}$

5. What does collinear mean? on the same line

6. What does coplanar mean? on the same plane

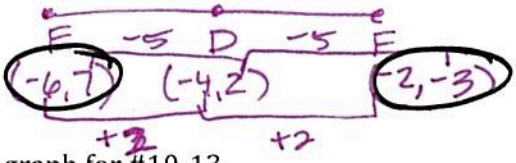
7. What are skew lines? lines that don't intersect and are non coplanar.

8. C is the midpoint of $\overline{AB}$. A(-5, -3) and B(3, 3). Find the coordinates for C.

$C = \left(\frac{-5+3}{2}, \frac{-3+3}{2}\right)$

$(-1, 0)$

9. D is the midpoint of EF. E(-6, 7) and D(-4, 2). ~~Find ED and the coordinates of F.~~ Find the coordinates of the other endpoint, F. Find DE.



$F(-2, -3)$

$ED = \sqrt{(-4+6)^2 + (2-7)^2}$

$\sqrt{(2)^2 + (-5)^2}$

$\sqrt{4+25} = \sqrt{29}$

Refer to the graph for #10-13

10. Find the coordinates of *D*, the midpoint of $\overline{AB}$

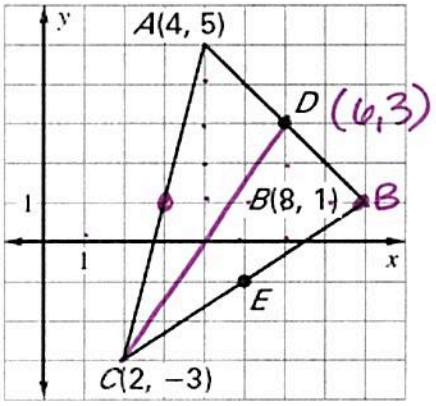
(6, 3)

11. Write the equation of the perpendicular bisector of $\overline{AB}$

⊥ slope = 1

$y - 3 = 1(x - 6)$

$y = x - 3$



12. Find the length of $\overline{CD}$

$\sqrt{(2-6)^2 + (-3-3)^2}$

$\sqrt{(-4)^2 + (-6)^2}$

$\sqrt{16+36} = \sqrt{52}$

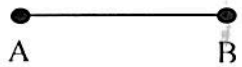
7.211

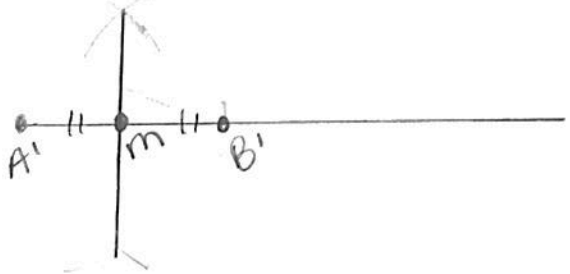
13. What is the midpoint of $\overline{AC}$?

(3, 1)

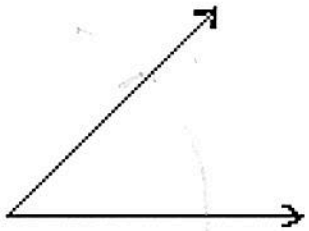
↑ move up

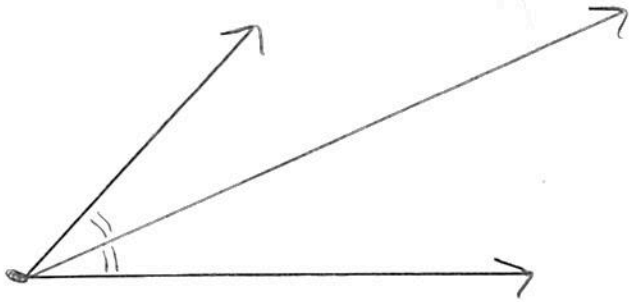
14. Duplicate and then bisect the line segment.





15. Duplicate and then bisect the angle.



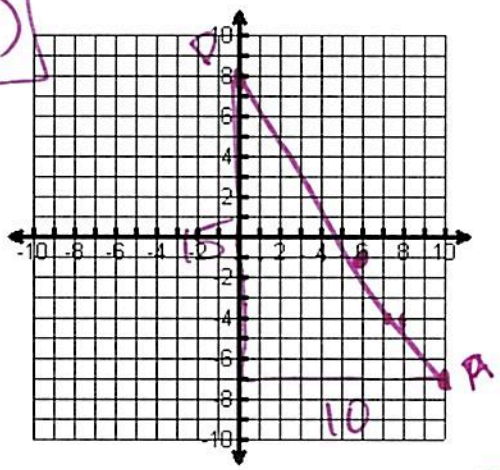


16. Austin (10,-7) and Dallas (0,8) are plotted on a coordinate grid. Podunk is 3/5 the distance from Dallas to Austin. What is the coordinate location of Podunk? (,)

$\left(\frac{3}{5}\right)15 = 9$

$\left(\frac{3}{5}\right)10 = 6$

(6,-1)



17. Calculate the distance between the line given by the equation $y = \frac{4}{3}x + 2$ and the point (-7, 1).

⊥ slope $= -\frac{3}{4}$

$y - 1 = -\frac{3}{4}(x + 7)$

$y - 1 = -\frac{3}{4}x - 5.25$

$+1 \qquad +1$

$y = -\frac{3}{4}x - 4.25$

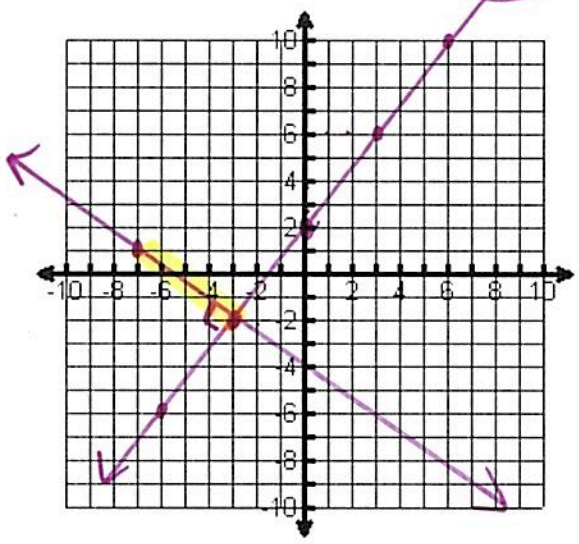
$\frac{4}{3}x + 2 = -\frac{3}{4}x - 4.25$

$6.25 = -\frac{25}{12}x$

(-3,-2)

$x = -3$

$y = -2$



$d = \sqrt{(-7+3)^2 + (1+2)^2}$

$\sqrt{(-4)^2 + (3)^2}$

$\sqrt{16+9} = \sqrt{25} = 5$