$\qquad$

1. If the slope of $\overline{\mathrm{EF}}$ is $\frac{2}{3}$ and $E(2,2)$ and $F(x, 7)$. Find $x$
2. Write an equation of the line that passes through the given point $P$ and has the given slope $m$.
A) $P(5,4), m=4$
B) $P(0,-3), m=16$
3. Write an equation of the line that passes through the point $P$ and is perpendicular to the line with the given equation.
A) $P(3,2), y=3 x+1$
B) $P(-8,-2), y=4 x-3$
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.)

$$
y=5 \quad y=-2 / 3 x+1 \quad y=3 x-10
$$


5. What does collinear mean? $\qquad$
6. What does coplanar mean?
7. What are skew lines? $\qquad$
8. $C$ is the midpoint of $\overline{A B} . A(-5,-3)$ and $B(3,3)$. Find the coordinates for $C$.
9. $D$ is the midpoint of $E F . E(-6,7)$ and $D(-4,2)$. Find $E D$ and the coordinates of $F$.

Refer to the graph for \#10-13
10. Find the coordinates of $D$, the midpoint of $\overline{A B}$
11. Write the equation of the perpendicular bisector of $\overline{A B}$
12. Find the length of $\overline{C D}$

13. What is the midpoint of $\overline{A C}$ ?
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? ( , )

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


