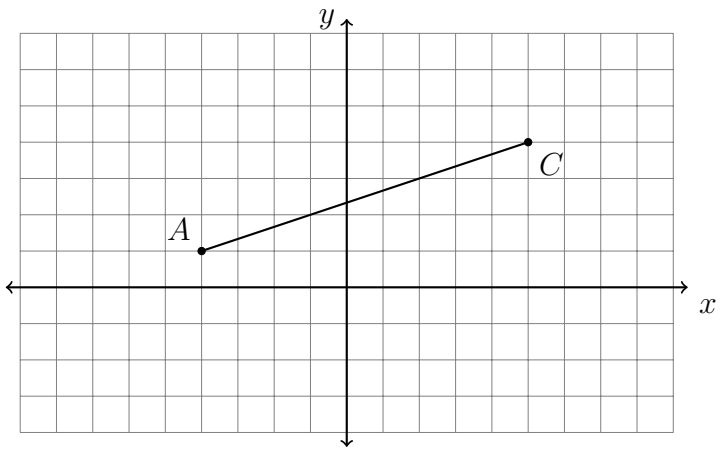
13.10 Do Now: Mixed review

1. In the diagram below, $\overline{AC}$ has endpoints with coordinates $A(-4, 1)$ and $C(5, 4)$.



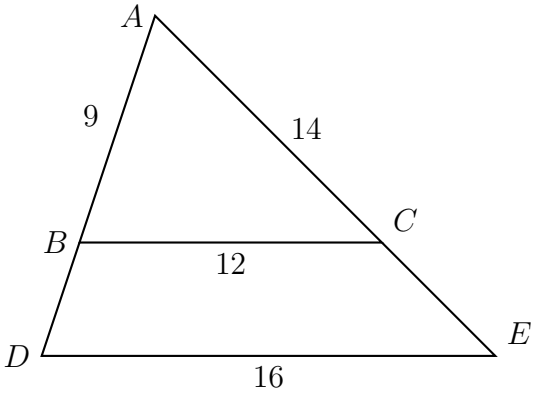
If B is a point on $\overline{AC}$ and $AB{:}BC = 1{:}2$, what are the coordinates of B?

2. The directed line segment MN has endpoints $M(-3, -6)$ and $N(2, 4)$. Point P divides $\overline{MN}$ such that $MP{:}PN$ is 2:3. What are the coordinates of P?

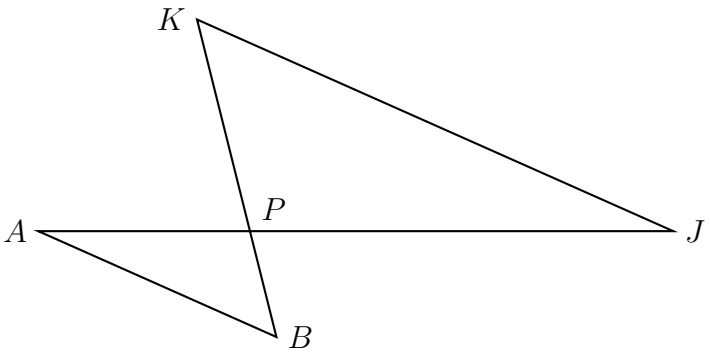
[Use the scrap Regents graph paper to help answer this problem]

3. Triangle ABC is dilated with a scale factor of k centered at A, yielding $\triangle ADE$, as shown. Given $AB = 9$, $BC = 14$, $AC = 14$, and $DE = 16$.

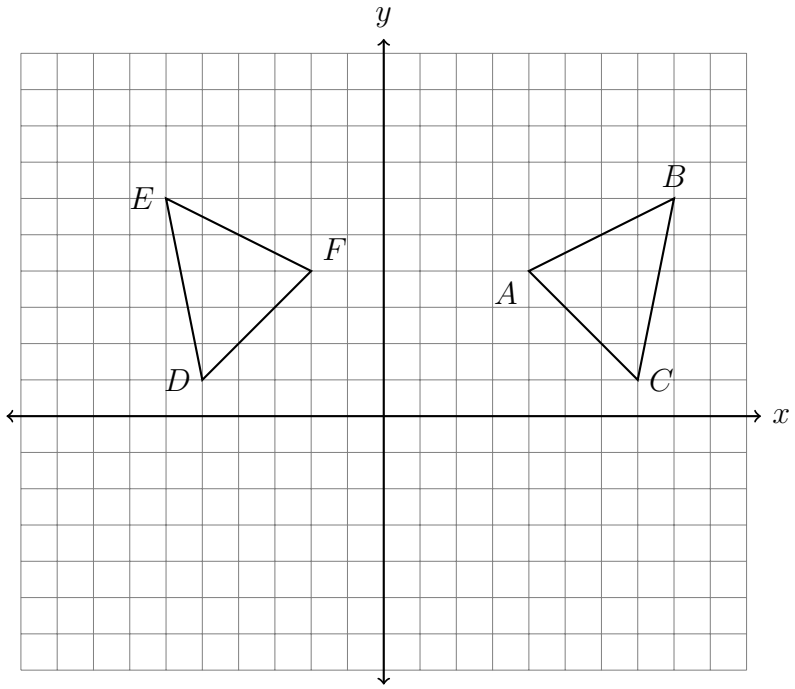
   Find k, BD, and AE (the scale factor).



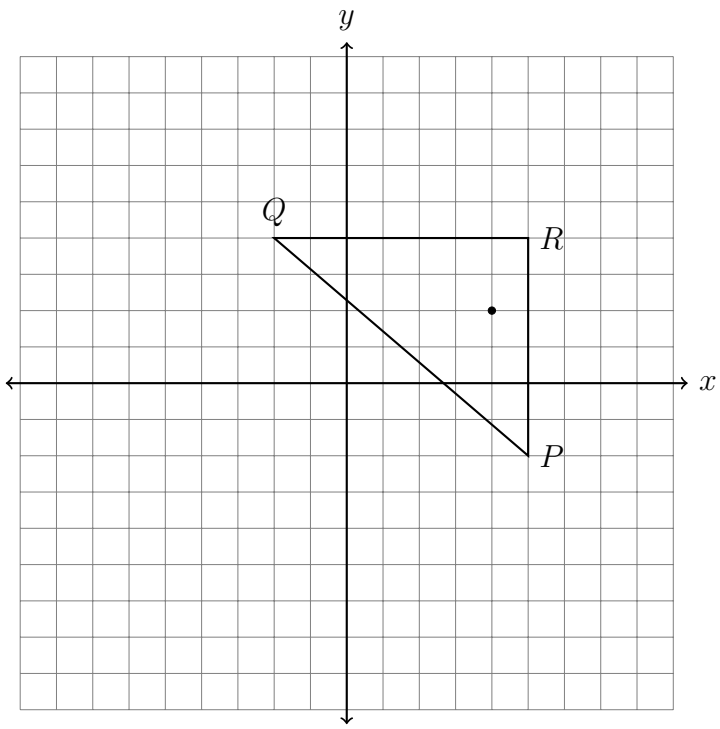
4. Given $\triangle ABP$ and $\triangle JKP$ as shown below. $\overline{AB} \parallel \overline{JK}$. $AP = 5.7$, $JP = 11.4$, and $JK = 14.8$. Find AB.



5. What single transformation maps $\triangle ABC$ onto $\triangle DEF$, shown below? Fully specify the transformation.



6. Dilate the $\triangle PQR$ by a factor of 2 centered at $(4, 2)$, drawing its image $\triangle P'Q'R'$ and labeling its vertices.



7. Write down the center and radius of the circle represented by $(x+1)^2+(y+3)^2=1$.

8. Write down the equation of a circle with radius $r=4$ and center $(7,-3)$.

9. Which equation represents a circle with radius 4 centered at $(1,-2)$?

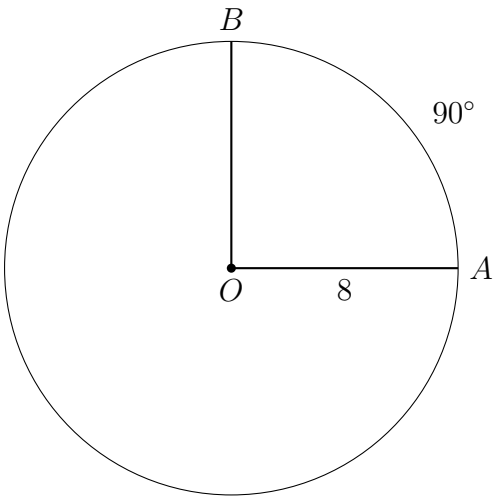
   (a) $x^2+2x+y^2-4y=9$

   (b) $x^2-2x+y^2+4y=9$

   (c) $x^2+2x+y^2-4y=16$

   (d) $x^2-2x+y^2+4y=16$

10. Circle O has a radius $AO=8$ cm, as shown below, and arc measure $m\widehat{AB}=90°$.



   (a) Find the $m\angle AOB$.

   (b) Find the length of the arc $\widehat{AB}$ to the *nearest tenth*.

   (c) Find the area of the sector AOB to the *nearest tenth*.