$x^2 + y^2 - 10x - 12y + 45 = 0$

$x^2 - 10x + y^2 - 12y = -45$

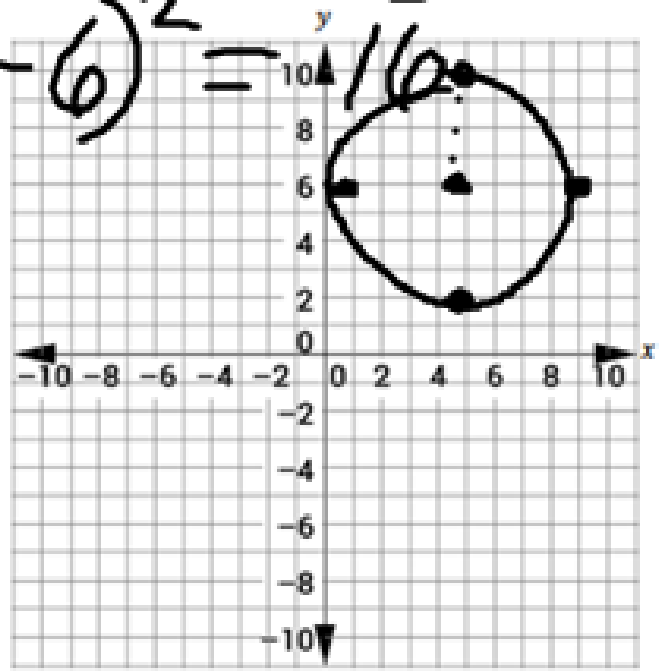
$x^2 - 10x + \left(\frac{-10}{2}\right)^2 + y^2 - 12y + \left(\frac{-12}{2}\right)^2$

$x^2 - 10x + 25 + y^2 - 12y + 36 = -45 + 25 + 36$

$(x-5)^2 + (y-6)^2 = 16$

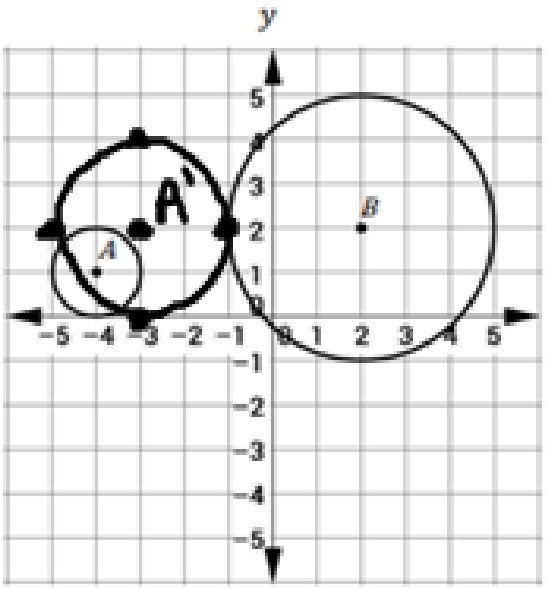
$(5, 6)$

$r = 4$



Transformations of Circles:

What transformation(s) will map circle A onto circle B?



$(x, y) \rightarrow (x + 6, y + 1)$

$(x, y) \rightarrow (3x, 3y)$

Centered at pt A

Graph the result of a transformation of circle A using the rule (x, y) → (x + 1, y + 1) followed by a dilation of scale factor two centered at pointA'

Describe where A" will be located if circle A' is dilated by scale factor two centered at the origin instead of centered at point A'.

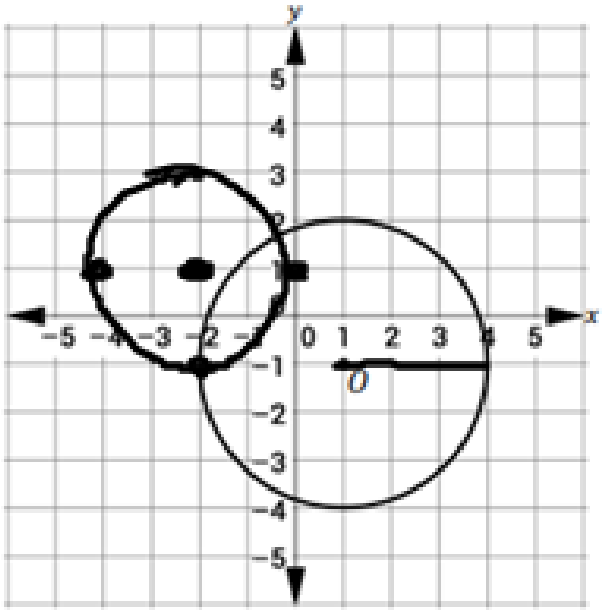
$(-3, 2)$

$\times 2 \times 2$

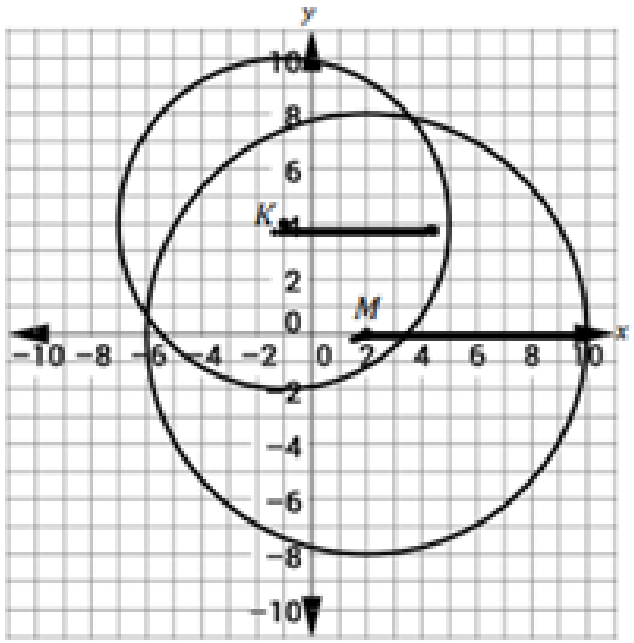
$(-6, 4)$

Your turn:

Graph the result of a transformation using the rule $(x, y) \rightarrow (x - 3, y + 2)$ followed by a dilation of scale factor $\frac{2}{3}$ centered on point O' on the coordinate plane below.



Consider the following diagram.



$K_r = 6$

$M_r = 8$

$\frac{8}{6} = \frac{4}{3}$

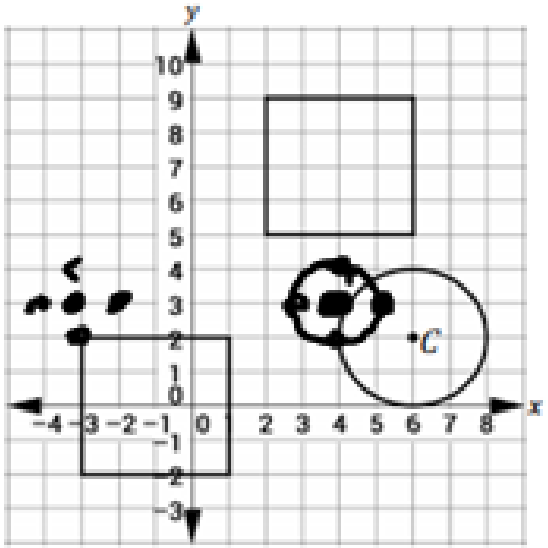
Describe the sequence of transformations that carry circle *K* onto circle *M*.

$(x, y) \rightarrow (x+3, y-4)$

$(x, y) \rightarrow \left(\frac{4}{3}x, \frac{4}{3}y\right)$ center at K

Informal Assessment:

Tom is building a new corral for his horse farm. He wants a corral with half the diameter of his current one. The schematic of his land is shown below. Circle C is the current corral. The rectangles represent barns. Select the series of transformations that would result in a corral that has the dimensions that Tom wants but would not interfere with any other structures.



A. First, dilate the circle centered at point C. Then, $(x, y) \rightarrow (x - 9, y)$.

B. First, $(x, y) \rightarrow (x - 6, y + 1)$. Then, $(x, y) \rightarrow$ [illegible]

C. First, $(x, y) \rightarrow \left(\frac{1}{2}x, \frac{1}{2}y\right)$. Then, $(x, y) \rightarrow (x + 2, y + 5)$.

D. First, $(x - 2, y + 1)$. Then, $(x, y) \rightarrow \left(\frac{1}{2}x, \frac{1}{2}y\right)$ centered at point C'.