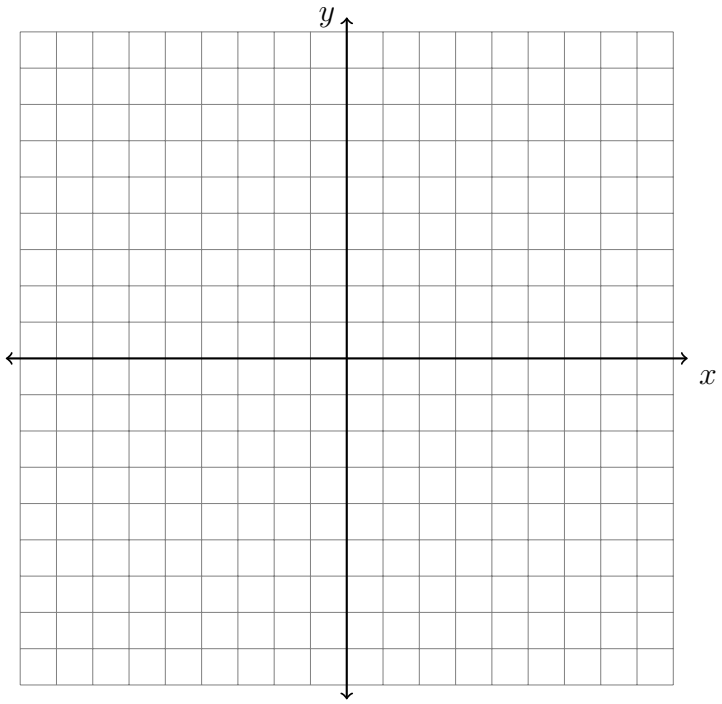
Do Now: Equations of circles on the coordinate plane

1. On the set of axes below, graph the diameter of a circle C, $\overline{AB}$ with $A(-2, 5)$ and $B(4, -3)$.



(a) Find the center of the circle, C, as an coordinate pair and mark it on the graph.

(b) Find the radius of the circle.

(c) Write down the equation of the circle in standard form.

2. Convert this quadratic function from vertex form to standard form ($f(x) = x^2 + bx + c$) by expanding the squared term and simplifying.

$$f(x) = (x-2)^2 + 4$$

3. In the quadratic function below, a constant value, p, "completes the square".

$$f(x) = x^2 + 14x + p - p$$

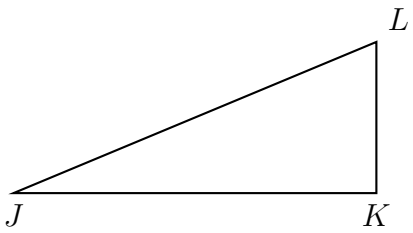
   (a) In the function, what are the values of the coefficients a and b?

   (b) What value of p would complete the square?

   (c) Rewrite the function f in vertex form.

   (d) Write down the value of the vertex of the graph of f as a coordinate pair.

4. Given right $\triangle JKL$ with $\overline{JK} \perp \overline{KL}$, $m\angle J = 35°$, and $JK = 10$.

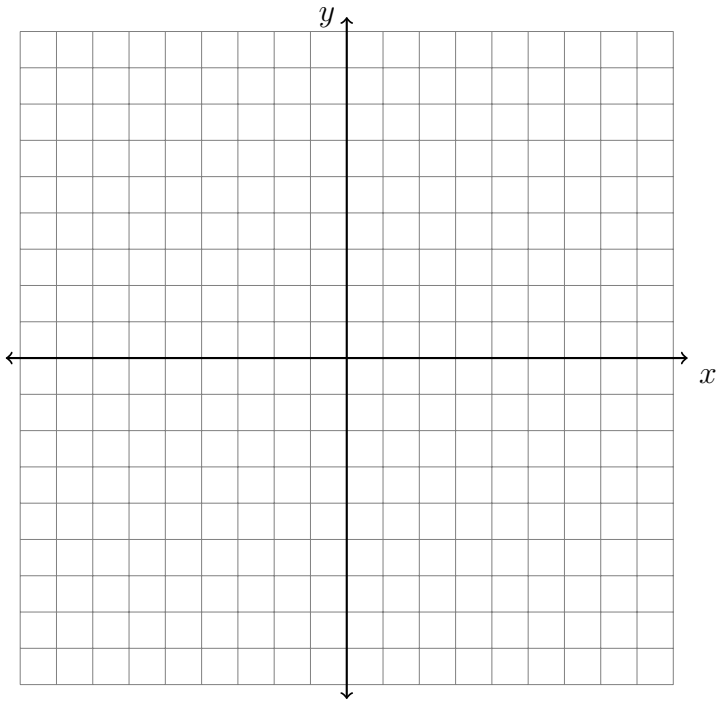


   (a) Find the length KL.

   (b) Find the length JL.

Homework: Equations of circles on the coordinate plane

1. On the set of axes below, graph the diameter of a circle C, $\overline{AB}$ with $A(7, 3)$ and $B(-5, -2)$.



(a) Find the center of the circle, C, as an coordinate pair and mark it on the graph.

(b) Find the radius of the circle.

(c) Write down the equation of the circle in standard form.

2. Write down the center and radius of each circle.

   (a) $(x-5)^2+(y-6)^2=25$

   (b) $(x+1)^2+(y+4)^2=8^2$

   (c) $(x-1)^2+y^2=36$

   (d) $(x+12)^2+(y-3)^2=3^2$

3. In the quadratic function below, a constant value, p, "completes the square".

$$f(x)=x^2+8x+p-p$$

   (a) In the function, what are the values of the coefficients a and b?

   (b) What value of p would complete the square?

   (c) Rewrite the function f in vertex form.

   (d) Write down the value of the vertex of the graph of f as a coordinate pair.