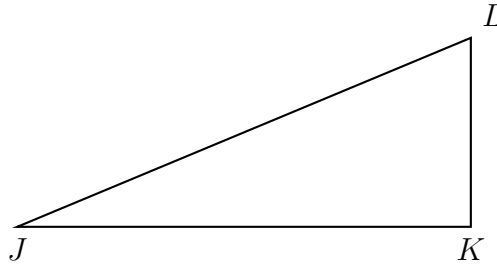


Name:

Do Now: Distance on the coordinate plane

1. Given right $\triangle JKL$ with $\overline{JK} \perp \overline{KL}$, $JL = 13$, and $JK = 12$.

(a) Find the length KL .



Based on the triangle above, express each trigonometric value as a fraction.

(b) $\sin J =$

(c) $\cos J =$

(d) $\tan J =$

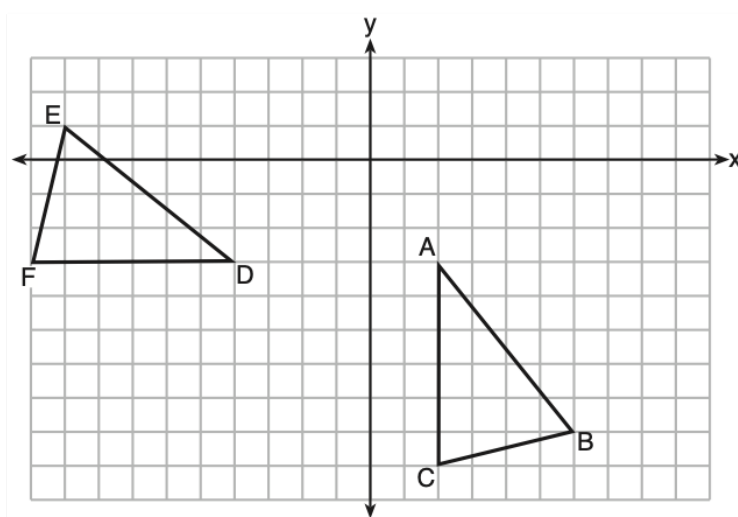
2. Convert this quadratic function from vertex form to standard form ($f(x) = x^2 + bx + c$) by expanding the squared term and simplifying.

$$f(x) = (x - 5)^2 - 1$$

3. Regent problem: Line segment $A'B'$, whose endpoints are $(4, -2)$ and $(16, 14)$, is the image of \overline{AB} after a dilation of $\frac{1}{2}$ centered at the origin. What is the length of \overline{AB} ?

4. Regent problem:

The grid below shows $\triangle ABC$ and $\triangle DEF$.



Let $\triangle A'B'C'$ be the image of $\triangle ABC$ after a rotation about point A. Determine and state the location of B' if the location of point C' is $(8, -3)$. Explain your answer.

Name:

Classwork: Algebra efficient solutions

1. Solve each problem two ways: as a first step distribute, and as a first step multiply each side of the equation by the fraction's denominator.

(a) $\frac{1}{2}(4x - 6) = 3$

(b) $\frac{1}{3}(5x - 4) = 2$

Which way is better? Explain

2. To solve for x , what would be the best first step?

Write down one of the following: distribute, multiply (both sides) by 5, multiply by x , multiply by 3, multiply by $\frac{3}{2}$, factor, substitute for x , collect like terms.

(a) $\frac{1}{5}(10x + 5) = 3$

(b) $\frac{2}{3}(5 - x) = -4$

(c) $x^2 - 4x + 5x + 4x^2 - 7 = 15$

(d) $\frac{1}{3}(9x + 3) = 17$

(e) $g(x) = x^2 - 5x + 3$. Find $g(1)$.

(f) $x^2 - 4x - 5 = 0$.

(g) $\sin 31^\circ = \frac{5}{x}$.

(h) $\cos 29^\circ = \frac{x}{5}$.

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

(a) $(x - 3)^2 + (y - 1)^2 = 16$

(c) $(x - 5)^2 + y^2 = 121$

(b) $(x + 2)^2 + (y - 7)^2 = 3^2$

(d) $(x + 2)^2 + (y - 3)^2 = 9^2$

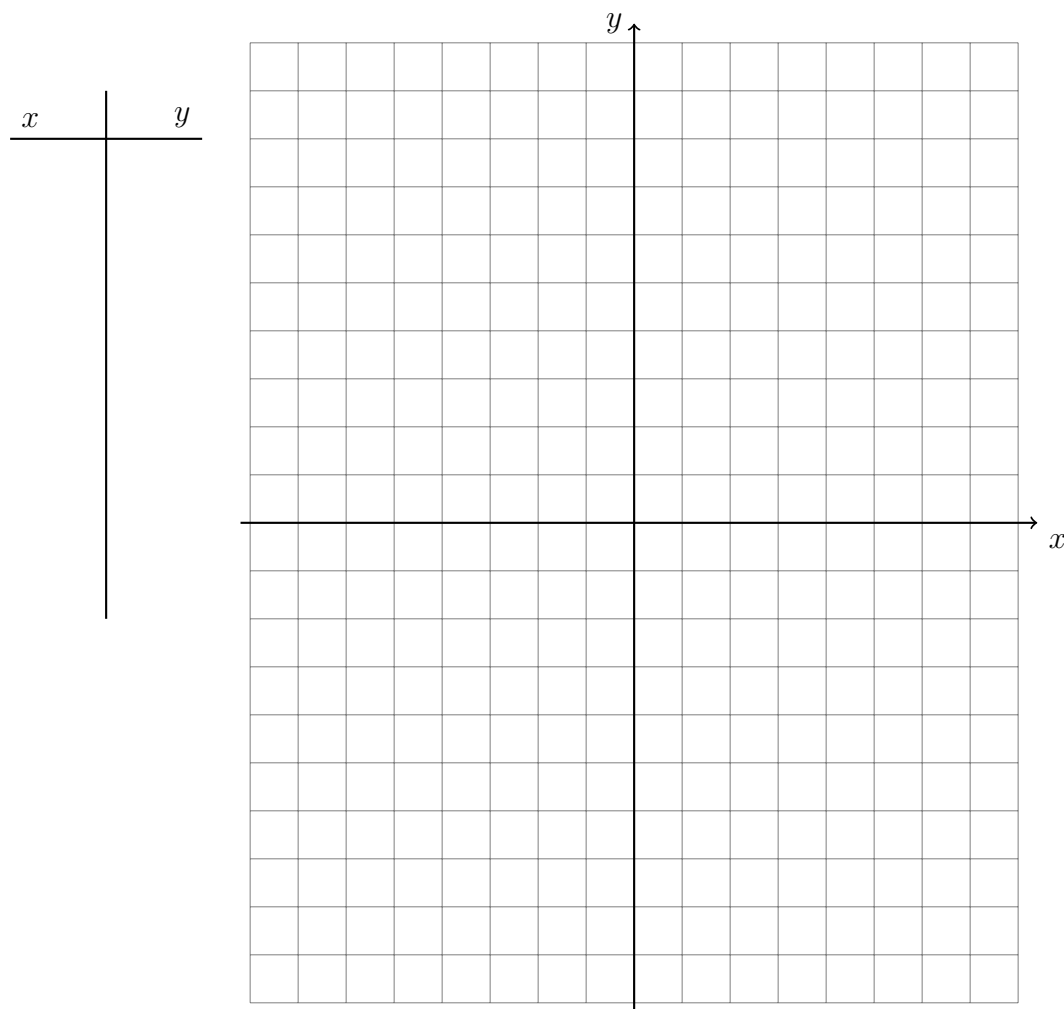
Name:

Classwork: Distance on the coordinate plane

1. Complete the t-chart for $x = -5, -4, -3, 0, 3, 4, 5$, then graph points on the grid below.
Use pencil for graphs.

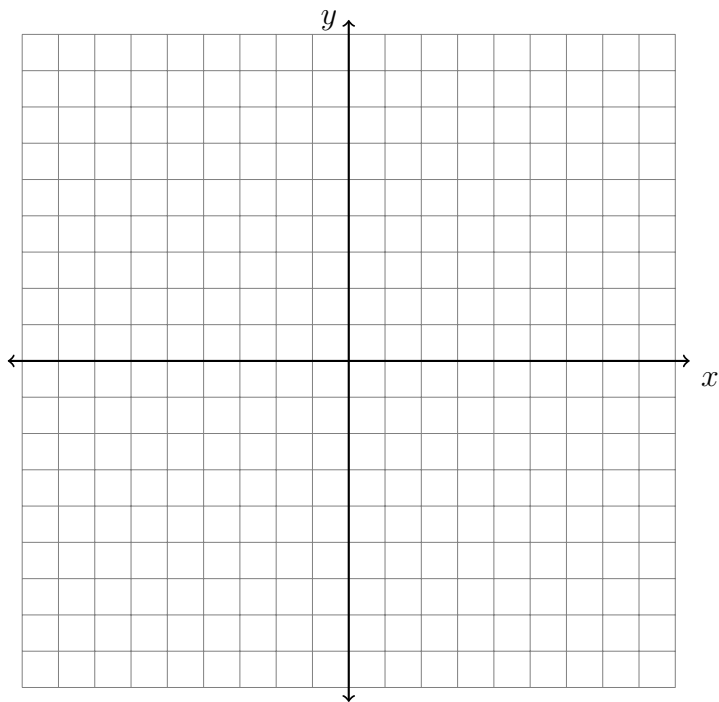
$$y = \sqrt{25 - x^2}$$

What is the shape of a smooth curve through the points?



- (a) Draw \overline{OA} with $O(0,0)$ and $A(-3,4)$
- (b) What is the length of \overline{OA} ?

2. On the set of axes below, graph the quadrilateral $ABCD$ having coordinates $A(-3, -3)$, $B(5, 1)$, $C(6, 8)$, and $D(-2, 4)$.



Find the length of each side of the quadrilateral.