

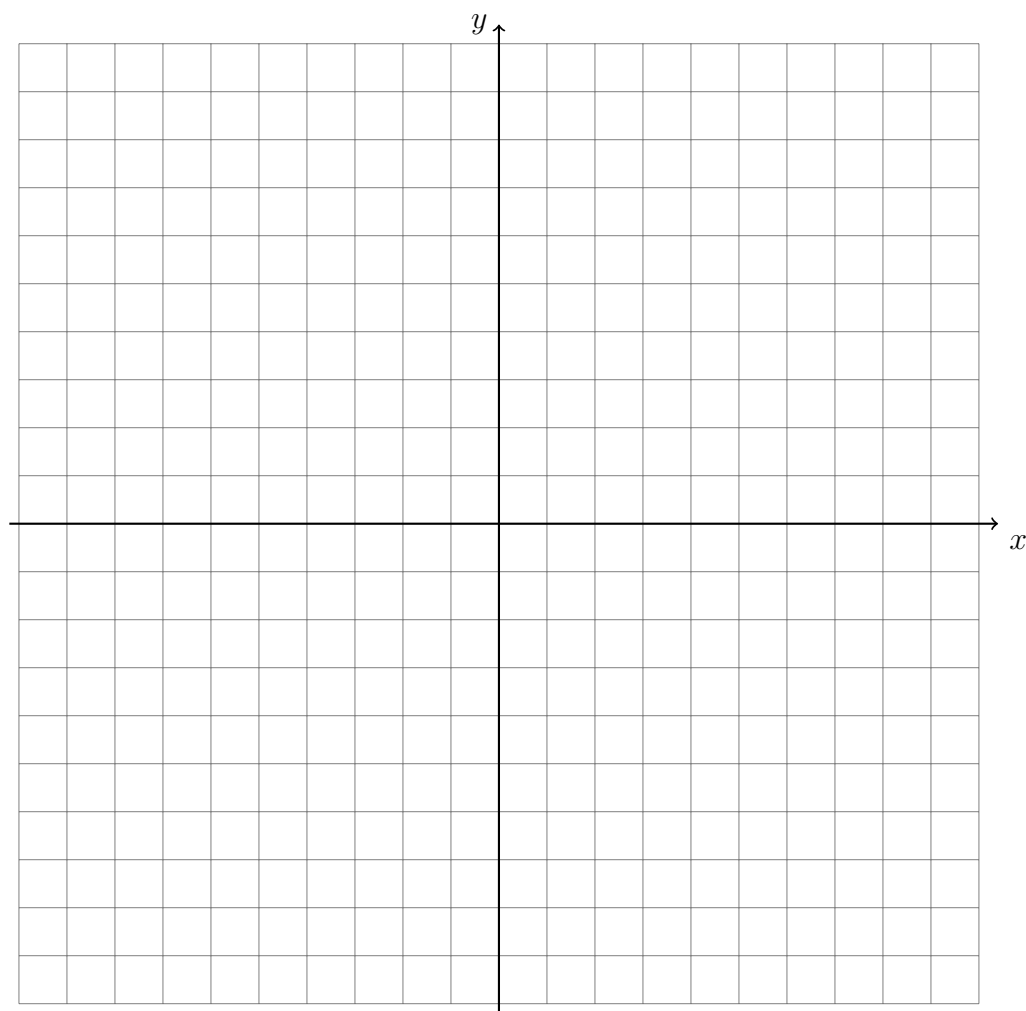
9.8 PreTest: Linear & quadratic functions on the coordinate plane

1. Graph and label the two equations. Mark their intersection as an ordered pair.

$$y = \frac{2}{3}x - 5$$

$$3x + 2y = 16$$

Are the lines parallel, perpendicular, or neither? Justify your answer.



2. Find the decimal value of each expression, rounded to the nearest hundredth.

(a) $5\sqrt{7}$

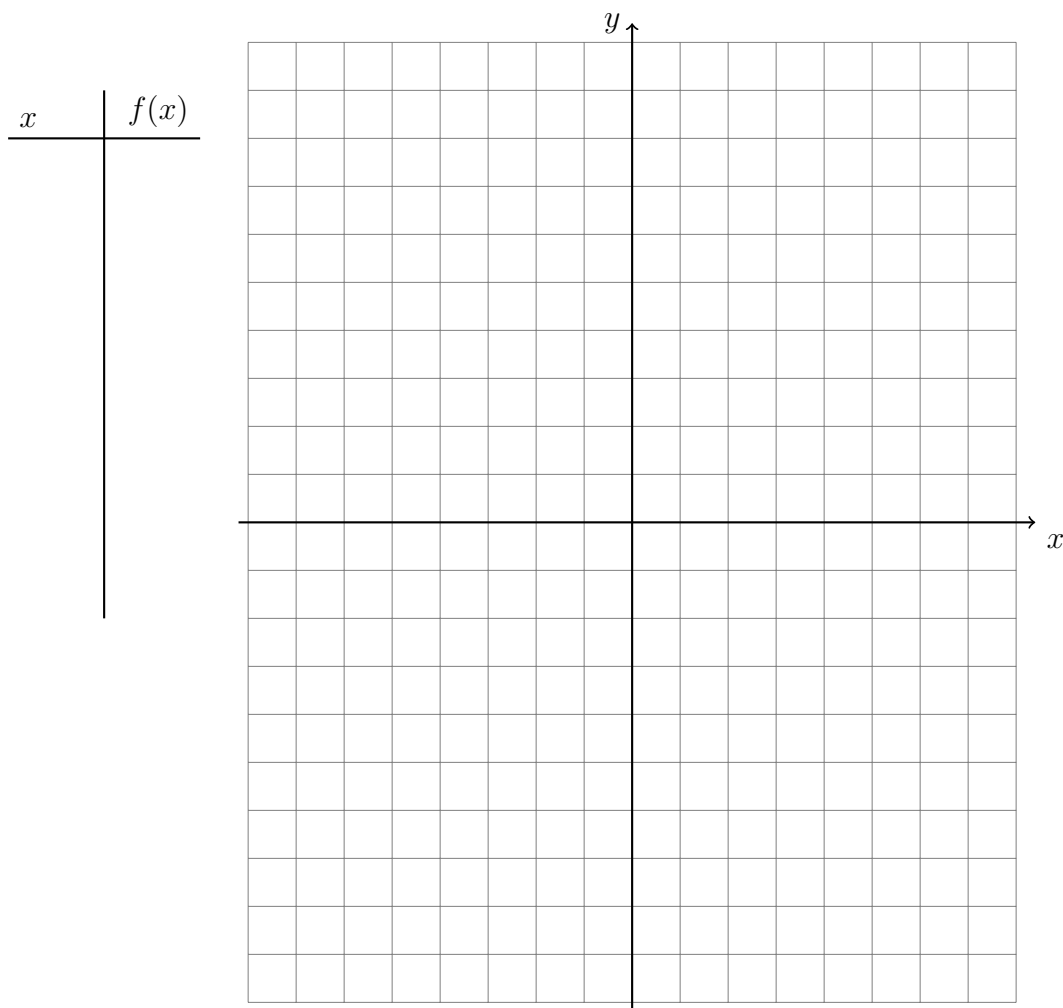
(c) $4 - \sqrt{7}$

(b) $\frac{4^2}{17}$

(d) 7π

3. Complete the t-chart for $x = 2, 3, 4, 5, 6, 7$, then graph and label the function on the grid below. Use pencil for graphs. Draw parabolas as smooth curves.

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



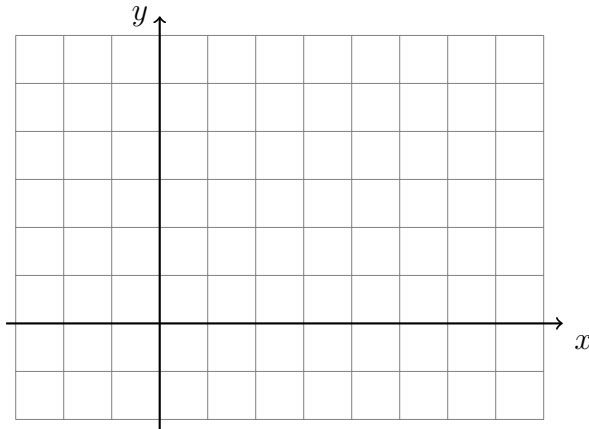
- (a) Mark the vertex on the graph as an ordered pair.
- (b) Write down the equation for the axis of symmetry.
- (c) The function is translated two units to the left and three units down, $f \rightarrow g$. What is the equation of g ?

4. The line l has the equation $y = \frac{1}{4}x - 11$.

(a) What is the slope of the line k , given $k \parallel l$?

(b) What is the slope of the line m , given $m \perp l$?

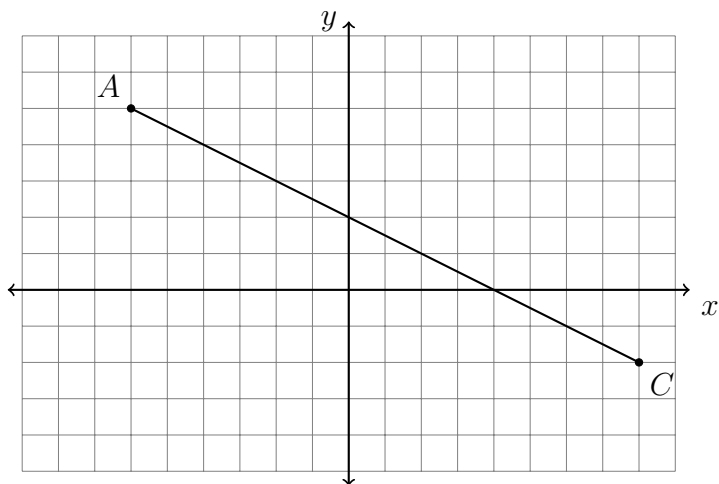
5. On the graph below, draw \overline{AB} , with $A(-2, 3)$ and $B(5, 1)$, labeling the end points. Determine and state the coordinates of the midpoint M of \overline{AB} and mark and label it on the graph.



6. Given $M(2, 6)$ and $N(-3, -6)$, find the length of \overline{MN} .

7. A translation maps $A(3, 11) \rightarrow A'(-2, 3)$. What is the image of $B(0, 7)$ under the same translation?

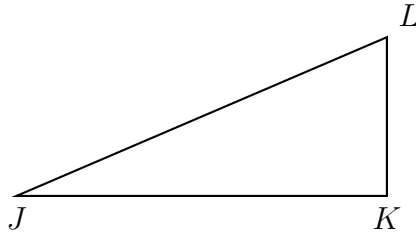
8. In the diagram below, \overline{AC} has endpoints with coordinates $A(-6, 5)$ and $C(8, -2)$.



If B is a point on \overline{AC} and $AB:BC = 2:5$, what are the coordinates of B ?

9. $A(1, -3)$ is one endpoint of \overline{AB} . The segment's midpoint is $M(5, 4)$. Find the other endpoint, B .

10. Given right $\triangle JKL$ with $\overline{JK} \perp \overline{KL}$, $JL = 12.4$, $m\angle J = 41^\circ$. Find the length JK , rounded to the nearest hundredth.



In the following two problems, solve for the value of x .

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

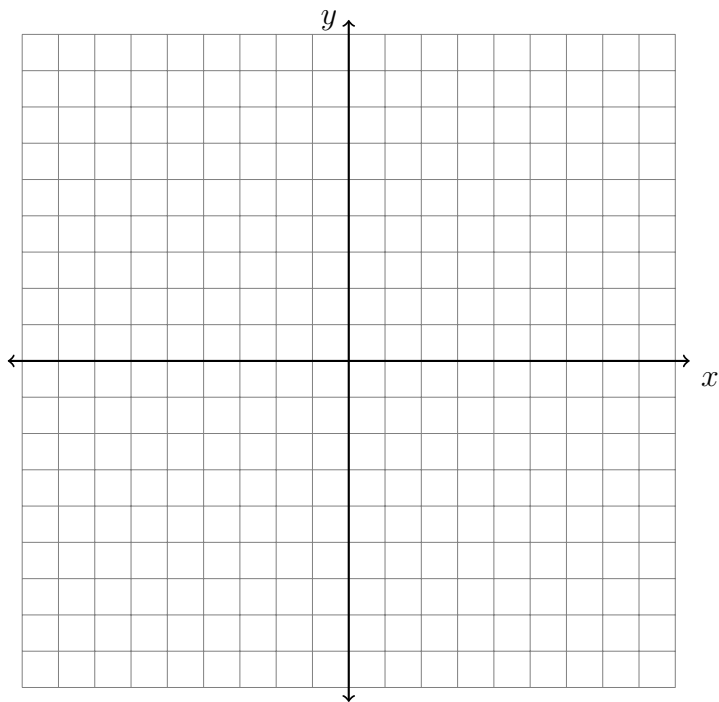
12. $\frac{2}{3}(5 - x) = -4$

13. Given $f(x) = \frac{1}{3}x + 3$. Solve for x such that for $f(x) = 2$.

14. Given $g(x) = -2x^2 - 5x + 3$. Simplify $g(1)$.

15. Given $h(x) = x^2 - 4x - 5$. Solve $h(x) = 0$.

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



Given that $\overline{AD} \parallel \overline{BC}$. Use what you know about slope and the definition that a parallelogram is a quadrilateral with two pairs of parallel sides to prove $ABCD$ is a parallelogram. Be sure to state the conclusion in your proof.