Pop Quiz: Operations on the coordinate plane

1. The line l has the equation $y = -\frac{1}{2}x + 3$.

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

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

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

2. $\frac{1}{3}(6x - 9) = 17$

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

4. Given $f(x) = 3x + 3$. Simplify $f(2)$.

5. Given $g(x) = \frac{1}{2}x - 1$. Solve for x such that for $g(x) = 2$.

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

   (a) $(x - 1)^2 + (y - 7)^2 = 64$

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

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

$$f(x) = (x + 5)^2 - 15$$

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

$y = \frac{3}{4}x - 2$ $2x + 3y = 12$

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