3.6 Practice Solutions

Directions: Write the slope-intercept form of the equation of the line described.

1) through (2,3), parallel to $y = x + 3$
   $m = 1$
   $y - 3 = 1(x - 2)$
   $y = x + 1$

2) through (2,3), parallel to $y = -x + 3$
   $m = -1$
   $y - 3 = -1(x - 2)$
   $y = -x + 5$

3) through (-4, -5), parallel to $y = x + 3$
   $m = 1$
   $y + 5 = 1(x + 4)$
   $y = x - 1$

4) through (3, 1), perpendicular to $y = x - 2$
   $m = -1$
   $y - 1 = -1(x - 3)$
   $y = -x + 4$

5) through (3, 1), perpendicular to $y = -x + 3$
   $m = 1$
   $y - 1 = 1(x - 3)$
   $y = x - 2$

Directions: Determine whether the lines are parallel, perpendicular or neither.

1) $y = 2x + 3$
2) $y = -2x + 1$
3) $y = x + 2$
4) $y = 3x + 2$
5) $y = -3x + 1$
6) $y = 3x - 2$

10) A parallelogram is a quadrilateral that has opposite sides that are parallel. Is quadrilateral ABCD a parallelogram? Why or why not?
   A(0,2), B(3,4), C(2,7) and D(-1,5)

   $AB \rightarrow m = \frac{4 - 2}{3 - 0} = \frac{2}{3}$
   $BC \rightarrow m = \frac{7 - 4}{2 - 3} = -3$
   $CD \rightarrow m = \frac{2 - 7}{1 - 2} = 5$
   $DA \rightarrow m = \frac{-1 - 2}{-1 - 0} = -3$

   Opposite sides are parallel.