Find the slope of each line below in #1 and 2 and then tell whether the lines through the given points are parallel, perpendicular, or neither.

1. Line 1 : (8 , 12) and (7 , -5)
    Line 2 : (-9 , 3) and (8 , 2)

2. Line 1 : (3 , -4) and (-1 , 4)
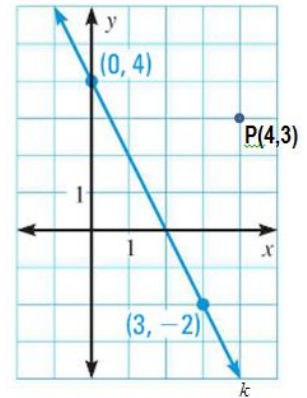   Line 2 : (2 , 7) and (5 , 1)

3. Find the slope of the line parallel to the line containing the points (-1 , 2) and (-4 , -4).

4. Write the equation in slope-intercept form of the line parallel to $y = \dfrac{2}{3}x - 4$ with a y-intercept of 1.

5. Write the equation in slope-intercept form of the line parallel to y = 6x – 4 that passes through the point (3 , -1).

6. Write the equation in slope-intercept form of the line parallel to $y = -2x + 3$ that passes through the point (3 , 4).

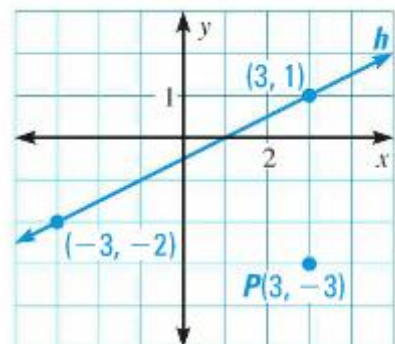7. Write the equation of the line in slope-intercept form parallel to line k and passes through P.

8. Find the slope of the line perpendicular to the line containing the points (-4 , 1) and (-2, -4).

9. Write an equation in slope-intercept form of the line perpendicular to y = 2x – 3 that passes through (-4 , 1).

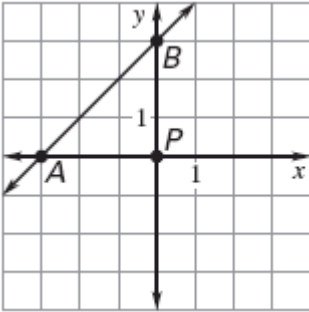10. Write an equation in slope-intercept form of the line perpendicular to y = -9x – 1 that passes through (-18 , 2).

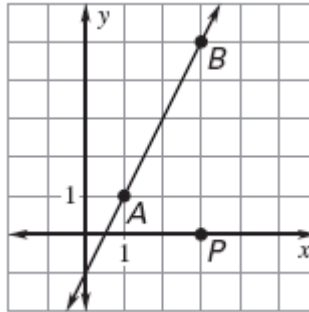11. Write the equation of the line in slope-intercept form perpendicular to line h and passes through P.

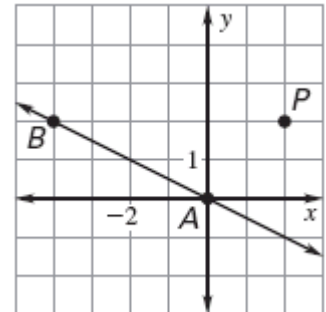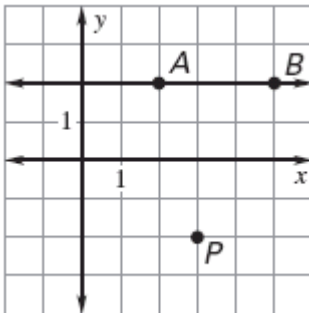**Graph the line parallel to line *AB* that passes through point *P* and write its equation.**
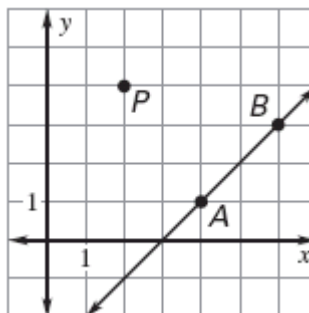
12.

13.

14.

Graph the line perpendicular to line *AB* that passes through point *P* and write its equation.
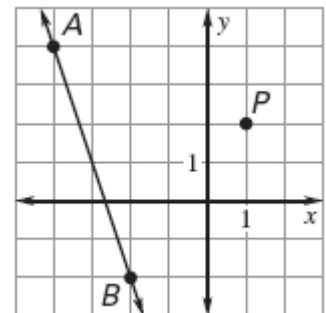
15.

16.

17.

CHALLENGE PROBLEMS!

18. Write an equation of the line in slope-intercept form that passes through (-2 , 1) and is parallel to the line through (3 , 1) and (4 , $-\frac{1}{2}$).

19. Write the equation of the line in slope-intercept form that passes through (1 , 2) and is perpendicular to the line through (3 , -2) and (-3 , 0).

20. Are the lines given by the equations $2y - x = 4$ and $2x + y = 4$ parallel, perpendicular, or neither? Explain your reasoning.

Answer Key :

1. Perpendicular

2. Parallel

3. $m = 2$

4. $y = \dfrac{2}{3}x + 1$

5. $y = 6x - 19$

6. $y = -2x + 10$

7. $y = -2x + 11$

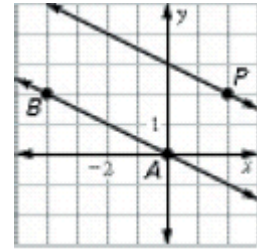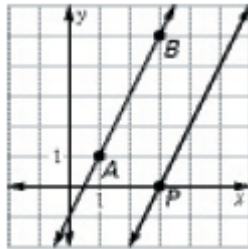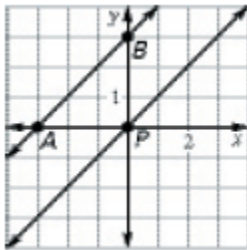8. $m = \dfrac{2}{5}$

9. $y = -\dfrac{1}{2}x - 1$

10. $y = \dfrac{1}{9}x + 4$

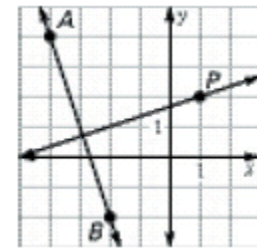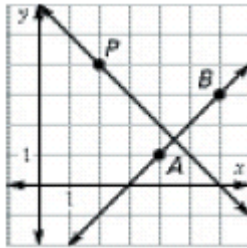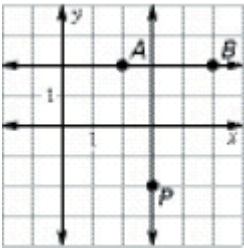11. $y = -2x + 3$

12. $y = x$

13. $y = 2x - 6$

14. $y = -\dfrac{1}{2}x + 3$

15. $x = 3$

16. $y = -x + 6$

17. $y = \dfrac{1}{3}x + \dfrac{5}{3}$

Challenge Problems!

18. $y = -\dfrac{3}{2}x - 2$

19. $y = 3x - 1$

20. Perpendicular