Name: Solutions

6.4 Classwork: Parallel and perpendicular slopes
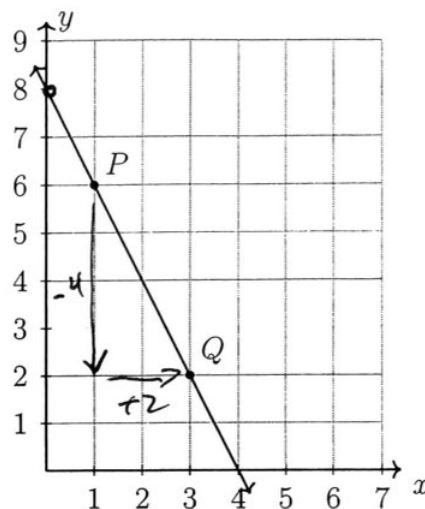
The slope of a line: $m = \dfrac{y_2 - y_1}{x_2 - x_1}$

1. Given $\overleftrightarrow{PQ}$, $P(1,6)$, $Q(3,2)$. Find its slope, y-intercept, and equation.

$M = \dfrac{-4}{2} = -2$

$b = 8$

$y = -2x + 8$

2. The line l is shown on the grid below.

   (a) Write down it's slope, y-intercept.
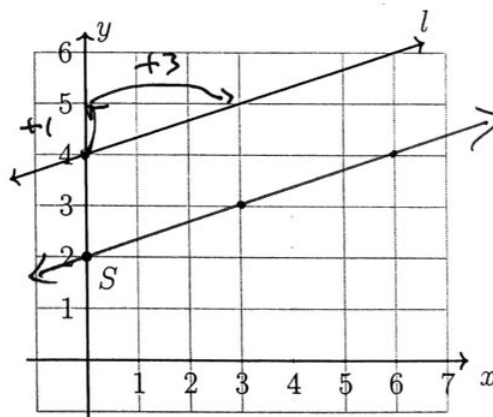
   $m = \dfrac{1}{3}$ $b = 4$

   (b) Write down the equation of line l.

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

   (c) Draw a line parallel to line l though point S.

   (d) Write down the equation of the second line.

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

3. The line has the equation $y = -x + 7$.

   (a) Write down it's slope and y-intercept. $m = -1$ $b = 7$

   (b) Is the point $(4,4)$ on the line? Justify your answer.

   $(4) = -(4) + 7$?

   $4 \neq 3$ NO

4. The line l has the equation $y = 3x + 2$. $M = 3$

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

$$M_K = 3$$

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

$$-\frac{1}{3}$$

5. The line l is shown on the grid below.

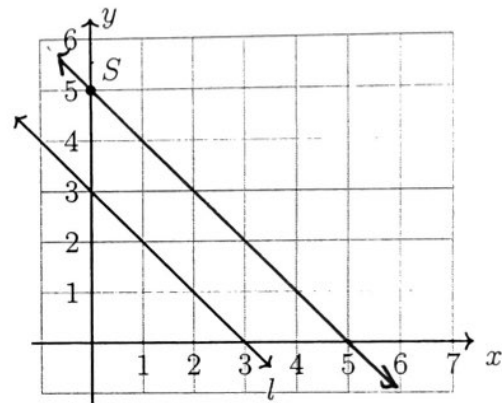(a) Write down it's slope, y-intercept.

$m = \quad -1 \qquad b = \quad 3$

(b) Write down the equation of line l.

$$y = -x + 3$$

(c) Draw a line parallel to line l though point S.

(d) Write down the equation of the second line.

$$y = -x + 5$$

6. The line l has the equation $y = -\frac{3}{5}x + 4$. To each line below, circle whether l is parallel, perpendicular, or neither. $M = -3/5$

(a) parallel   perpendicular   (neither) $y = \frac{3}{5}x - 2$

(b) parallel   (perpendicular)   neither $y = \frac{5}{3}x + 9$

(c) parallel   perpendicular   (neither) $3x - 5y = -15$

$$-5y = -3x - 15$$
$$y = 3/5\, x + 3$$

(d) parallel   (perpendicular)   neither $5x - 3y = 6$

$$-3y = -5x + 6$$
$$y = \frac{5}{3}x - 2$$