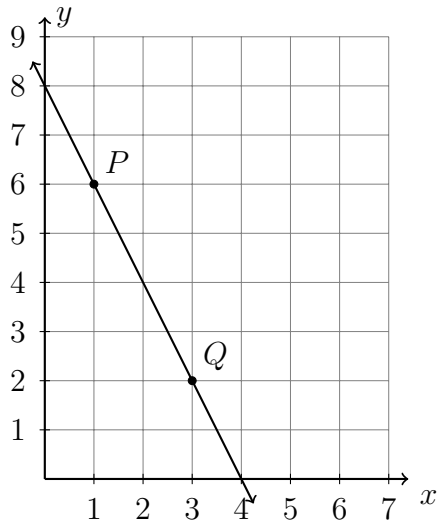
## 6.4 Classwork: Parallel and perpendicular slopes

The slope of a line: $m = \dfrac{y_2 - y_1}{x_2 - x_1}$

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




**Parallel lines have the same slope**

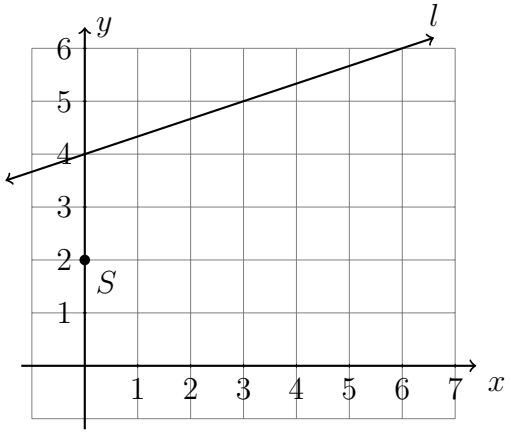
2. The line $l$ is shown on the grid below.

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

   (b) Write down the equation of line $l$.

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

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




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

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

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

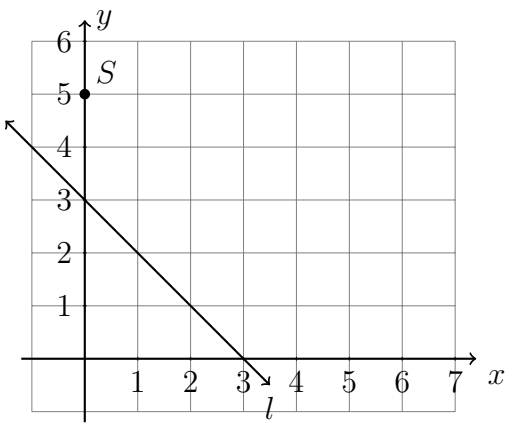
4. The line $l$ is shown on the grid below.

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

   (b) Write down the equation of line $l$.

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

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




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

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

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

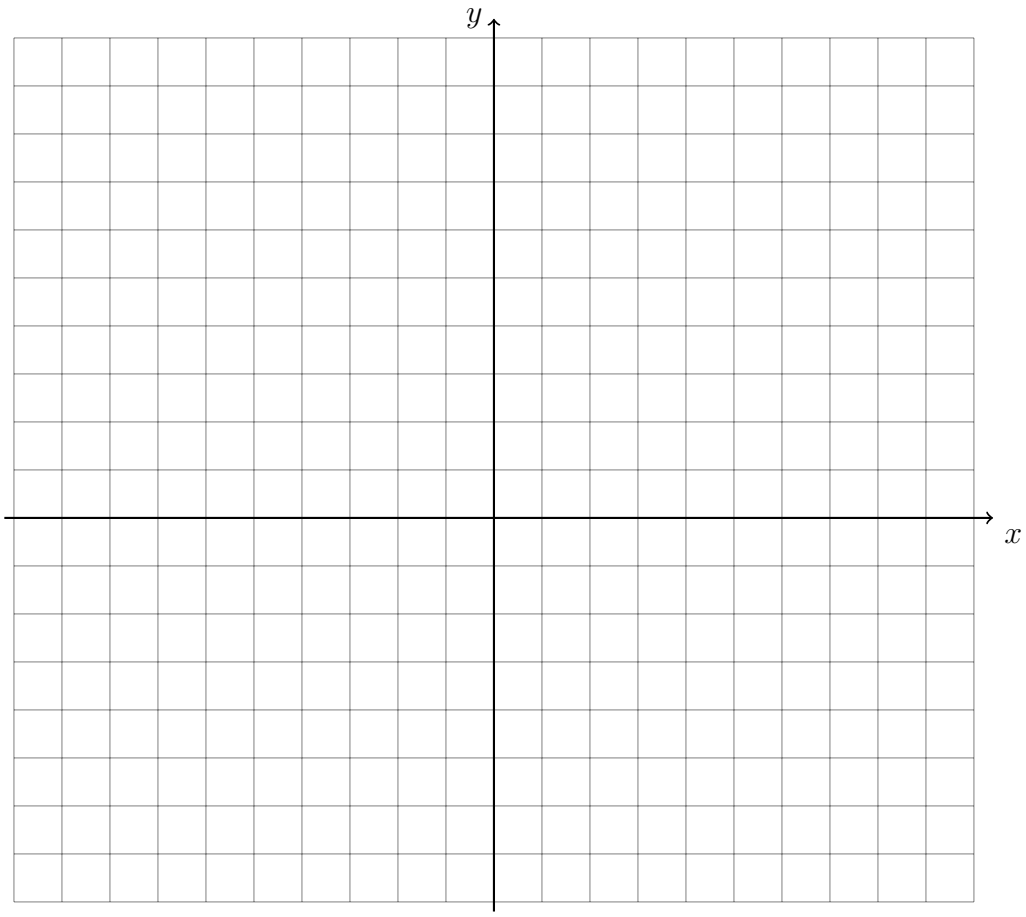
   (c) parallel perpendicular neither $3x - 5y = -15$

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

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

   $y = -4x - 6$ $x - 3y = -21$

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




7. The line $l$ has the equation $y = 3x + 2$.
   (a) What is the slope of the line $k$, given $k \parallel l$?

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