

7. The straight line passing through the points A(-1, 1) and B(-P, 13) has slope 2. Find the value of P.

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

$$x(1-p)$$

$$\begin{aligned} & -2 \\ & \div -2 \end{aligned}$$

$$m_{AB} = \frac{13-1}{-p-(-1)} = \frac{12}{-p+1}$$

$$m_{AB} = 2$$

$$\Rightarrow \frac{12}{1-p} = 2$$

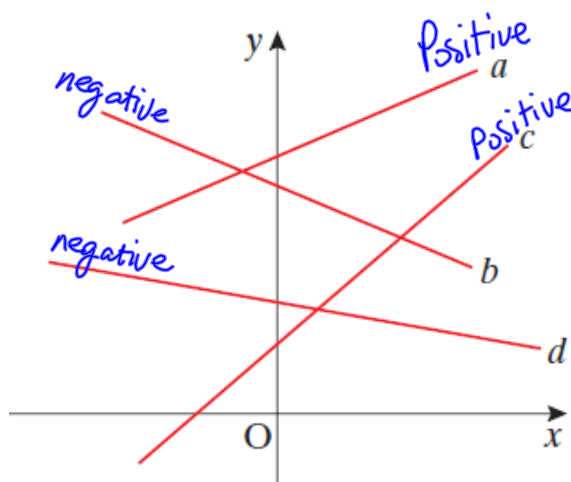
$$12 = 2(1-p)$$

$$12 = 2 - 2p$$

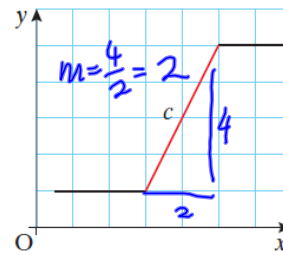
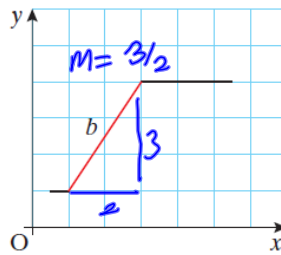
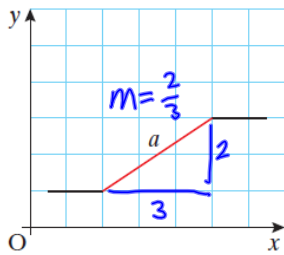
$$10 = -2p$$

$$-5 = p$$

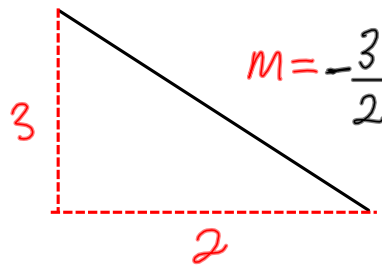
9. The diagram shows four lines a, b, c and d.
- Which lines have positive slopes?
 - Which lines have negative slopes?



10. Three lines a , b and c are drawn on the grids below:

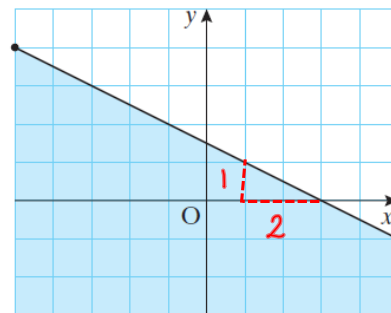


Write down the slope of each line



$$\text{Slope} = \frac{\text{Rise}}{\text{Run}}$$

11. Why is the slope of the given line negative?
Use the grid to work out the slope of the line.



$$m = -\frac{1}{2}$$

13. P(5, 6), Q(k, 2) and R(9, -1) are three points such that PQ is perpendicular to QR.
Find the two values of k.

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

$$\frac{a}{b} \perp -\frac{b}{a}$$

Solve

$$m_{PQ} = \frac{2-6}{k-5} = \frac{-4}{k-5}$$

$$m_{QR} = \frac{-1-2}{9-k} = \frac{-3}{9-k}$$

$$m_{PQ} \perp m_{QR} \Rightarrow \frac{-4}{k-5} \perp \frac{k-5}{4}$$

$$\Rightarrow \frac{k-5}{4} = \frac{-3}{9-k}$$

$$(k-5)(9-k) = (-3)(4)$$

$$9k - k^2 - 45 + 5k = -12$$

$$-k^2 + 14k - 33 = 0$$

$$k^2 - 14k + 33 = 0$$

$$(k-3)(k-11) = 0$$

$$k=3 \text{ or } k=11$$