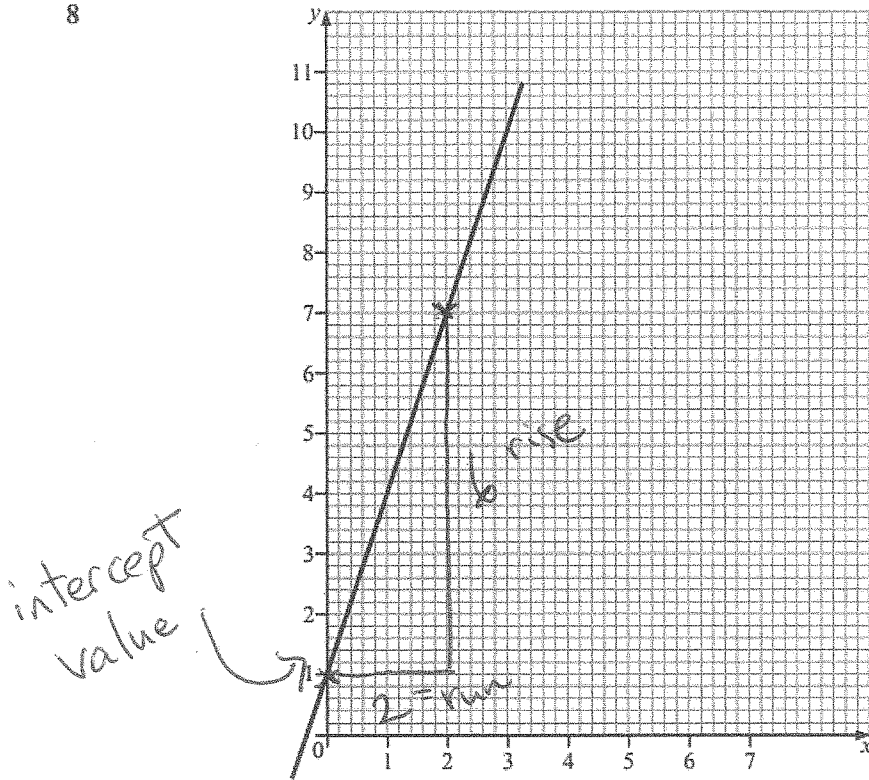


M4 = 21 days to go!

8



(a) Find the gradient of the line shown.

$$\text{gradient} = \frac{\text{rise}}{\text{run}} = \frac{6}{2}$$

Answer 3 [1]

(b) Hence write down the equation of the line in the form $y = mx + c$

$$y = mx + c$$

↑ gradient ← intercept

Answer $y = 3x + 1$ [1]

(c) Write down the equation of the line which is parallel to the line shown and which passes through the point $(0, -1)$.

parallel means same gradient

Answer $y = 3x - 1$ [2]

(d) Explain why the straight lines $y = 3x - 2$ and $3y + x = 5$ are perpendicular.

$$y = 3x - 2$$

$$y = -\frac{1}{3}x + \frac{5}{3}$$

Perpendicular

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

If 2 lines are perpendicular then $\text{grad} \times \text{grad} = -1$ [2]

- 3 A square of side x cm is lengthened by 2 cm on one side and 4 cm on the other side to create a rectangle.

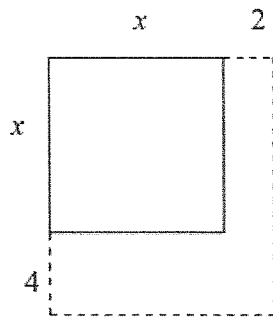


diagram not drawn accurately

- (a) Write an expression for the area of the rectangle.

$(x+2)(x+4)$ Answer $(x+2)(x+4)$ or x^2+6x+8 [2]

- (b) The area of the rectangle is 48cm^2
Show that $x^2 + 6x - 40 = 0$

$$x^2 + 6x + 8 = 48$$

$$x^2 + 6x + 8 - 48 = 0$$

$$x^2 + 6x - 40 = 0$$

[2]

- (c) Hence solve the equation to find the value of x .

$$x^2 + 6x - 40 = 0$$

solve either by factorising or The big formula

$$\frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

Answer $x = 4$ [3]

$$x^2 + 6x - 40 = 0$$

↑ add ↑ multiply

$$x^2 + 6x - 40 = 0$$

$$(x+10)(x-4) = 0$$

$$x = -10$$

$$x = 4$$

Not possible

✓