

M4 = 4! days to go!

- 6 (a) The price of a TV is increased by 20%.

In a sale this price is decreased by 20%.

By choosing any starting price for the TV, show that the final sale price is lower than the starting price.

$$\text{say } \pounds 500 + 20\% = 600$$

$$500 \times 1.2 = 600$$

then
 $600 - 20\%$

$$600 \times 0.80 = \pounds 480$$

[3]

- (b) Calculate the overall percentage decrease.

$$\begin{aligned} \pounds 20 \text{ decrease on } \pounds 500 \\ \% \text{ decrease } \frac{20}{500} = 0.04 \end{aligned}$$

Answer 4 % [2]

- (c) Would the outcome be the same if the 20% decrease was applied first, followed by the 20% increase? Justify your answer.

$$\times 0.8 \times 1.2$$

is exactly the same as

$$\times 1.2 \times 0.8$$

Would be exactly the same. [2]

- 12 After a 7.5% pay rise Mr Jones' salary was £29 455

What was his salary before the pay rise?

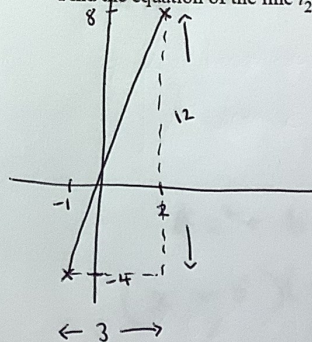
$$\begin{array}{ccc} & + 7.5\% & \\ & \times 1.075 & \rightarrow 29455 \\ \text{before} & & \\ & \leftarrow & \\ & \div 1.075 & \end{array}$$

Answer £ 27400 [3]

- 17 The line l_1 passes through the points $(-1, -4)$ and $(2, 8)$.

The line l_2 is perpendicular to l_1 and passes through the point $(1, 1)$.

Find the equation of the line l_2 in the form $y = mx + c$.



$$\begin{aligned} \text{Grad of line } l_1 &= \frac{\text{rise}}{\text{run}} = \frac{12}{3} \\ &= 4 \end{aligned}$$

l_2 and l_1 are perpendicular

$$m_1 \times m_2 = -1$$

$$\text{Gradient of line } l_2 = -\frac{1}{4}$$

$$y = mx + c$$

$$y = -\frac{1}{4}x + c$$

Point $(1, 1)$

$$1 = -\frac{1}{4}(1) + c$$

$$1 = -\frac{1}{4} + c$$

$$\frac{5}{4} = c$$

$$\text{Answer } y = -\frac{1}{4}x + \frac{5}{4} \quad [5]$$