

Intermediate 2 Mathematics
Unit 1 A/B Test.

Q1 Option 1

$$20,000 \times 1.05^3 \quad (1)$$
$$= \underline{\underline{23152.5}} \quad (1)$$

Gail should go
for
option 1 (1)

Option 2

$$20,000 \times 1.15 \quad (1)$$
$$= \underline{\underline{23,000}} \quad (1)$$

Q2. (a) $5x^2 - 125$

$$5(x^2 - 25) \quad (1)$$
$$5(x-5)(x+5) \quad (1)$$

(b) $4x^2 - 12x + 9$

$$(2x-3)(2x-3)$$

(1) (1)

(4)

$$\begin{matrix} x \times 4x \\ 2x \times 2x \end{matrix}$$

(9)

$$\begin{matrix} 1 \times 9 \\ 3 \times 3 \end{matrix}$$

$$(2-3) = -6$$
$$(2-3) = -6$$

Q3 (1) Area of half cylinder

$$A = \pi \times (3.5)^2$$
$$= 38.48 \text{ m}^2$$

Ans $\div 2$ (semicylinder)

$$= 19.24 \text{ m}^2$$

Total cross section

$$\Rightarrow (1) + (2)$$
$$= 19.24 + 35$$
$$= 54.24 \text{ m}$$

(2) Area of rectangle

$$A = l \times b$$
$$= 5 \times 7$$
$$= 35 \text{ m}^2$$

Volume $\Rightarrow A \times h$

$$= 54.24 \times 12$$
$$V = 650.9 \text{ m}^3$$

$$V = \underline{\underline{650 \text{ m}^3}} \text{ to 2 sf.}$$

$$(b) \text{ New } V = 200$$

$$V = (3 \times W) + \left(\frac{1}{2} \times 2 \times W\right) \times 12$$

$$200 = (3W + W) \times 12$$

$$200 = 4W \times 12$$

maybe 2
on that
side

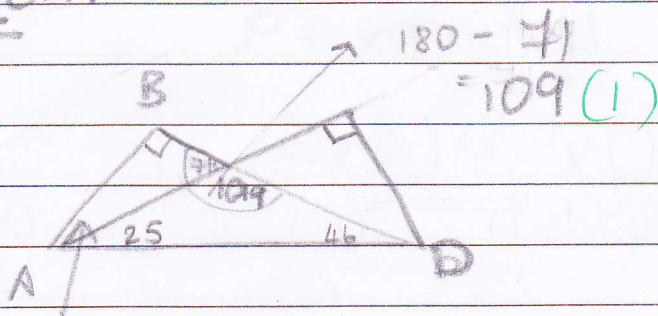
$$4W = \frac{200}{12}$$

$$4W = 16.666$$

$$W = \underline{\underline{4.17 \text{ cm}}}$$

4

$$\angle DBA = 90^\circ \text{ (i)}$$



$$180 - 90 - 71$$

$$\angle BAC = 19 \text{ (i)}$$

5.

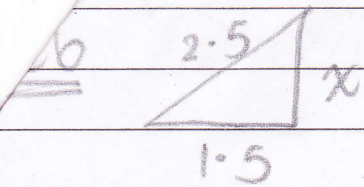
$$\begin{matrix} (0, 2) & (8, 6) \\ x_1 & x_2 \\ y_1 & y_2 \end{matrix}$$

$$m = \frac{6-2}{8-0} = \frac{4}{8} = \frac{1}{2} \text{ (i)}$$

$$y = \frac{1}{2}x + c$$

$$y = \underline{\underline{\frac{1}{2}x + 2}} \text{ (i)}$$

(i)



By Pyth.

$$a^2 = b^2 + c^2 \quad (1)$$

$$2.5^2 = 1.5^2 + x^2$$

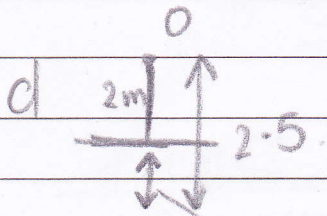
$$x^2 = 2.5^2 - 1.5^2$$

$$x^2 = 6.25 - 2.25$$

$$x^2 = 4$$

$$x = \sqrt{4}$$

$$= \underline{\underline{2 \text{ m}}} \quad (1)$$



$$2.5 - 2 = 0.5 \quad d = 0.5 \quad (1)$$

(1)

Q7 $3y = 12 - 4x$

cuts x-axis when

$$3 \times 0 = 12 - 4x$$

$$0 = 12 - 4x$$

$$4x = 12$$

$$\underline{\underline{x = 3}} \quad (1)$$

$$y = 0$$

coordinates (3, 0) (1)

Q8 $\frac{120}{360} \times \pi \times (15.7)^2$

$$A = \frac{(1)}{360} \times \pi \times r^2$$

$$= \underline{\underline{774.371}}$$

$$= \underline{\underline{258.12 \text{ cm}^2}} \quad (1)$$

Q9. $(x-2)(3x^2+4x-5)$

$$\cancel{3x^3} + 4x^2 - 5x - \cancel{6x^2} - 8x + 10$$

$$= 3x^3 - 2x^2 - 13x + 10$$

Q10. $77\% = 13,475$ (1)

$$1\% = 13,475 \div 77$$

$$= 175$$
 (1)

$$100\% = \underline{\underline{17,500}}$$
 (1)

Total

37