

AQA, OCR, Edexcel

GCSE

GCSE Maths

Edexcel November 12 Paper 1

Name:

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Mathsmadeeasy.co.uk

Total Marks:

Edexcel Nov 12 P1

1.

$$16 \times 1.5 = 24$$

so multiply all ingredients by 1.5

$$\text{flour } 180 \times 1.5 = 270\text{g}$$

$$\text{ginger } 40 \times 1.5 = 60\text{g}$$

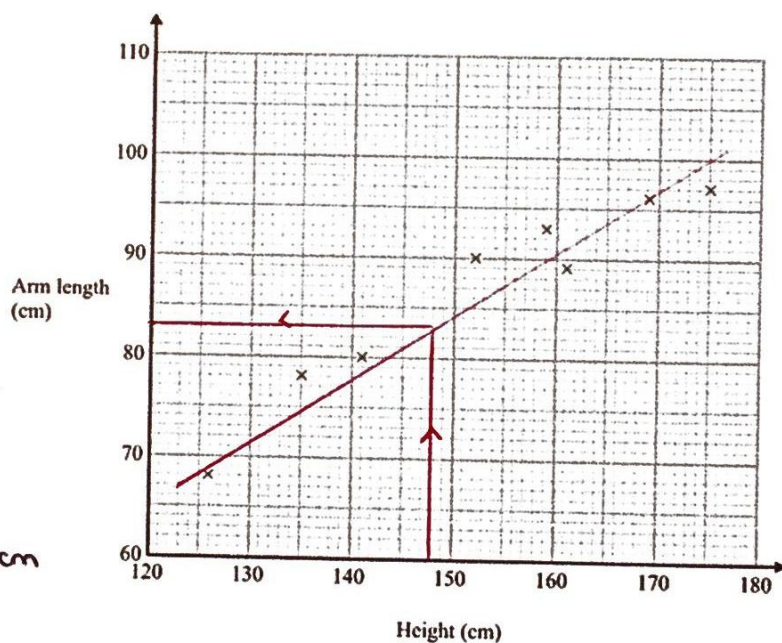
$$\text{butter } 110 \times 1.5 = 165\text{g}$$

$$\text{sugar } 30 \times 1.5 = 45\text{g}$$

2a.

Positive correlation

2b.



3.

$$\begin{array}{r} 7095 \\ \times 15 \\ \hline \end{array}$$

$$\begin{array}{r} 7095 \\ - 7095 \\ \hline \end{array}$$

$$\begin{array}{r} 0060 \\ \hline \end{array}$$

so used 60 units

$$60p \times 15 = 900p$$

$$\therefore \text{£}9.00$$

Gary must pay £9.00

4. How many hours do you spend, per week, reading books?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
0-1	2-3	4-5	6+

5.

$$\begin{array}{r} 31 \times 9.87 \\ \hline 0.509 \end{array}$$

$$\begin{array}{l} 31 = 30 \quad (1 \text{ s.f.}) \\ 9.87 = 10 \quad (1 \text{ s.f.}) \\ 0.509 = 0.5 \quad (1 \text{ s.f.}) \end{array}$$

$$\begin{array}{r} 30 \times 10 \\ \hline 0.5 \end{array} = \frac{300}{0.5} = 600$$

6. Enlargement s.f. 2.5 centred at (0,0)

7.

$$\begin{aligned} \text{Area of trap.} &= \frac{1}{2} (b+a) \times c \\ &= \frac{1}{2} (18+12) \times 9 \\ &= 15 \times 9 \\ &= 135 \text{ m}^2 \end{aligned}$$

$$\frac{135}{20} = 6.75 \quad \text{so he need 7 bags}$$

$$7 \times £4.99$$

$$7 \times £5.00 = £35$$

$$- 7p$$

$$= £34.93$$

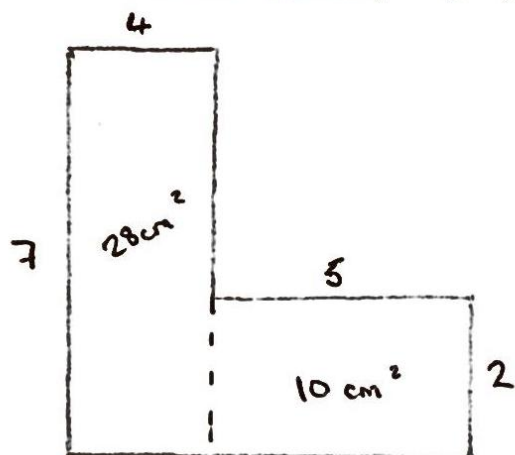
8a.

colour	red	blue	white	black
P	0.2	0.5	0.15	0.15

$$P(\text{white}) = 0.15$$

8b. $0.2 \times 240 = \frac{1}{5} \times 240 = 48$

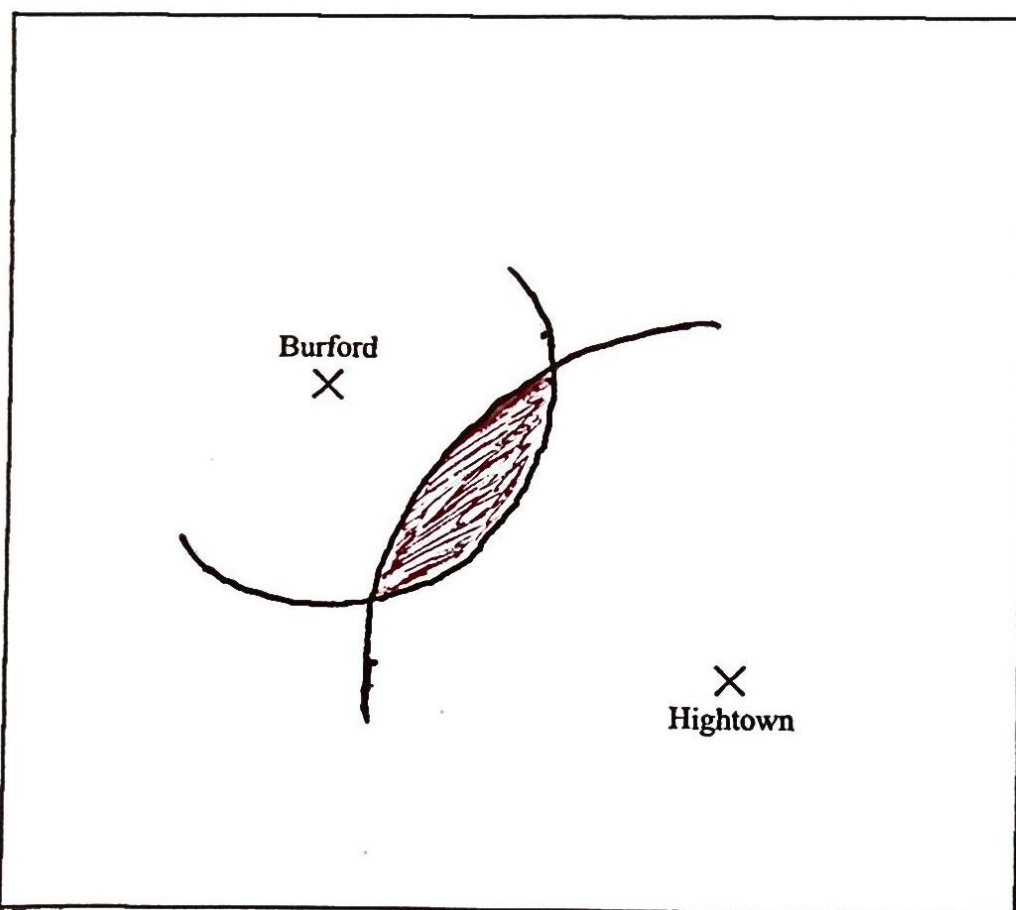
9. $V = \text{cross section} \times \text{length}$



So cross section = 38 cm^2

$$V = 38 \text{ cm}^2 \times 10 \text{ cm} \\ = 380 \text{ cm}^3$$

10.



11a. $4(3x+5) = 12x + 20$

11b. $2(x-4) + 3(x+5)$

$\cdot 2x - 8 + 3x + 15$

$\cdot 5x + 7$

11c. $(x+4)(x+6) = x^2 + 4x + 6x + 24$
 $= x^2 + 10x + 24$

12. A of square $= 12 \times 12 = 144$

A of circle $= \pi r^2 = 36\pi \quad (r=6)$

A of space outside circle, but inside square
 $= 144 - 36\pi$

Shaded region $= \frac{1}{4} (144 - 36\pi)$
 $= 36 - 9\pi$

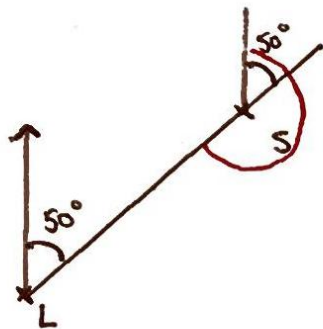
13. $\begin{matrix} \text{C} & \text{S} & \text{G} \\ 1 & 3 & 5 \end{matrix} \Rightarrow 9 \text{ bits}$

$\frac{180}{9} = 20 \Rightarrow \text{each bit is worth } 20\text{kg}$

Cement	1 bit	so	20kg
sand	3 bits	so	60kg
gravel	5 bits	so	100kg

\therefore he needs another 5kg of cement.

14.



$$\begin{aligned} \text{Red angle} &= 50^\circ + 180^\circ \\ &= 230^\circ \end{aligned}$$

15a.

$$m^5 \div m^3 = m^{5-3} = m^2$$

15b.

$$5x^4y^3 \times x^2y = 5x^6y^4$$

16.

$$\text{Perimeter} = 56$$

$$\text{So } x-1 + 3x + 1 + 3x = 56$$

$$7x = 56$$

$$x = 8$$

($\div 7$)

$$\text{Area} = \frac{1}{2}(b \times h)$$

$$b = 3x$$

$$3(8) = 24$$

$$h = x-1$$

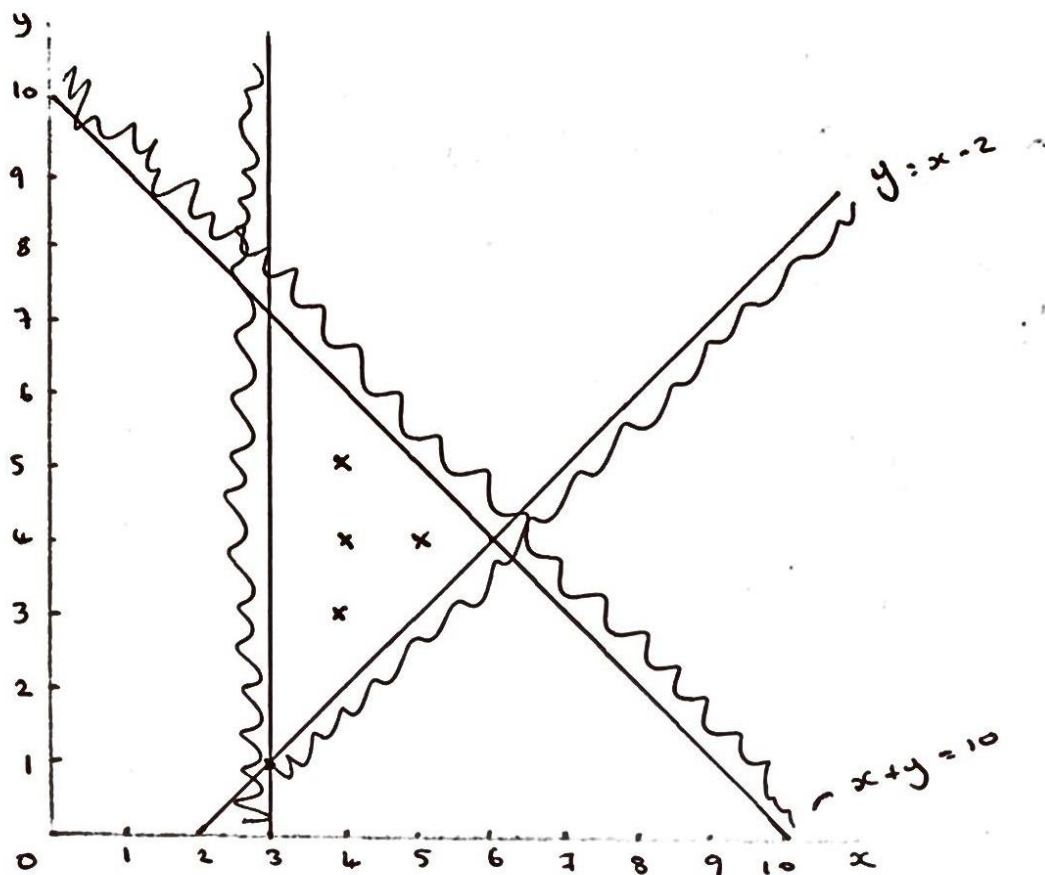
$$= 8-1 = 7$$

$$A = \frac{1}{2}(24 \times 7)$$

$$= 12 \times 7$$

$$= 84 \text{ cm}^2$$

17.



Points : (4, 3) (4, 4) (4, 5) (5, 4)

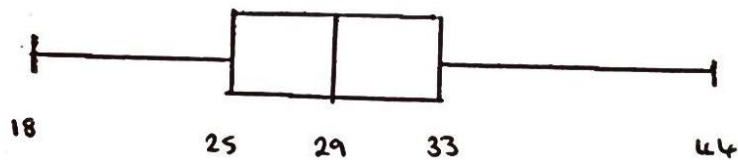
18.

Exterior angle of A : 30°

$$\frac{360}{\text{exterior}} = \text{no. of sides}$$

$$\frac{360}{30} = 12 \text{ sides}$$

19.



19b.

The IQR for boys was smaller.

The median time for boys was lower.

20.

$$0.038 \times 10^2$$

$$3.8$$

$$3800 \times 10^{-4}$$

$$0.38$$

$$380$$

$$0.38 \times 10^{-1}$$

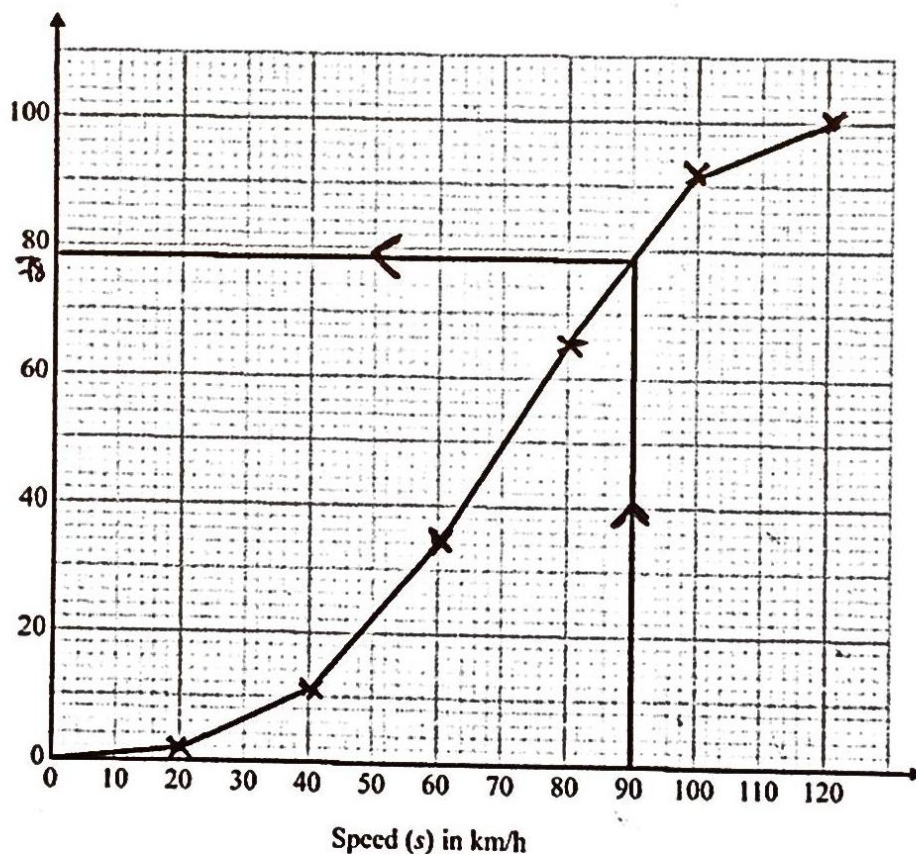
$$0.038$$

$$0.38 \times 10^{-1}, 3800 \times 10^{-4}, 0.038 \times 10^2, 380$$

21a.

speed	c.f.
$0 < s \leq 20$	2
$0 < s \leq 40$	11
$0 < s \leq 60$	34
$0 < s \leq 80$	65
$0 < s \leq 100$	92
$0 < s \leq 120$	100

21b.



21c.

$$100 - 78 = 22$$

$$\begin{array}{rcl}
 22. & 3x + 2y = 4 & \times 4 & 12x + 8y = 16 & \textcircled{1} \\
 & 4x + 5y = 17 & \times 3 & 12x + 15y = 51 & \textcircled{2}
 \end{array}$$

$$\begin{array}{rcl}
 \textcircled{2} - \textcircled{1} & 7y & = 35 \\
 & y & = 5
 \end{array}$$

$$\begin{array}{l}
 \text{'sub } y=5 \text{ into } 3x+2y=4\text{' } \\
 3x + 2(5) = 4 \\
 3x + 10 = 4 \\
 3x = -6 \\
 x = -2
 \end{array}$$

$$\begin{array}{l}
 \text{23. at A } y=0, \\
 0 = -2x + 6 \\
 2x = 6 \\
 x = 3 \quad A(3,0)
 \end{array}$$

$$\begin{array}{l}
 \text{grad of AD, } y = -2x + 6 \\
 = -2 \\
 \therefore \text{grad of AP} = \frac{1}{2} \text{ (since } \perp)
 \end{array}$$

$$\begin{array}{l}
 \text{AP: } y - 0 = \frac{1}{2}(x - 3) \\
 y = \frac{1}{2}x - \frac{3}{2}
 \end{array}$$

$$\begin{array}{l}
 \text{at P, } x=0 \quad y = -3/2 \quad P(0, -3/2)
 \end{array}$$

$$\begin{array}{l}
 \text{at D } x=0, \quad y = -2(0) + 6 \\
 y = 6 \quad D(0,6)
 \end{array}$$

$$\begin{array}{l}
 \text{so D to P} = 6 + 3/2 \\
 = 7.5
 \end{array}$$

24.

$$p = \frac{3-2t}{4+t} \quad (\times 4+t)$$

$$p(4+t) = 3-2t$$

$$4p + tp = 3-2t$$

$$2t + tp = 3-4p$$

$$t(2+p) = 3-4p$$

$$t = \frac{3-4p}{2+p}$$

25.

$$\text{length s.f. } 2$$

$$\text{area s.f. } 2^2 = 4$$

$$\text{volume s.f. } 2^3 = 8$$

$$\text{Since } 4 \times 2 = 8$$

$$\begin{aligned} \therefore \text{volume of B} &= 8 \times \text{volume of A} \\ &= 8 \times 80 \\ &= 640 \text{ cm}^3 \end{aligned}$$

25b.

$$\text{SA of B} = 160 \text{ cm}^2$$

$$\text{area s.f.} : 4$$

$$\begin{aligned} \therefore \text{SA of A} &= \frac{160}{4} \\ &= 40 \text{ cm}^2 \end{aligned}$$

26a.

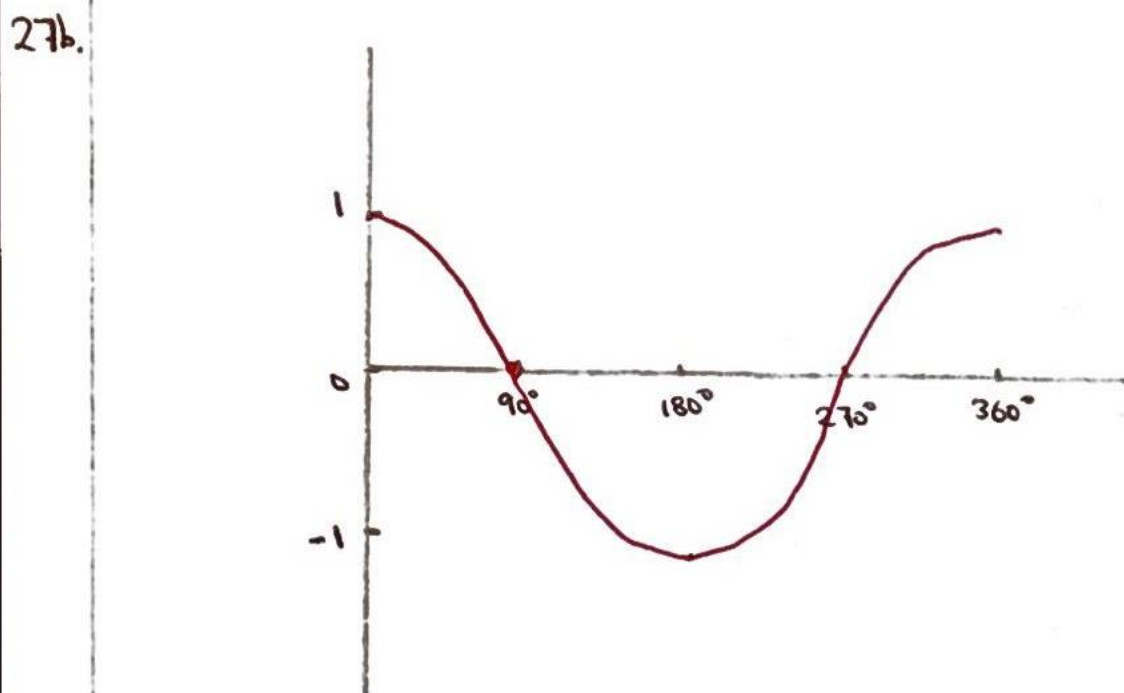
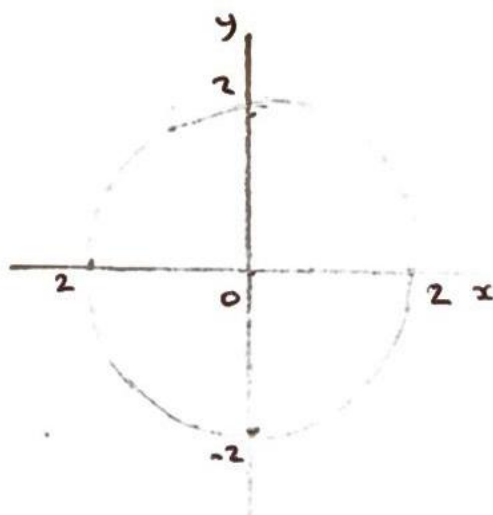
$$\frac{5}{\sqrt{2}} \times \sqrt{2}$$

$$\frac{5\sqrt{2}}{\sqrt{2} \cdot \sqrt{2}} = \frac{5\sqrt{2}}{2}$$

26b. $(2 + \sqrt{3})^2 - (2 - \sqrt{3})^2$

$$= (2 + \sqrt{3})(2 + \sqrt{3}) - (2 - \sqrt{3})(2 - \sqrt{3})$$
$$= 4 + 4\sqrt{3} + 3 - (4 - 4\sqrt{3} + 3)$$
$$= 8\sqrt{3}$$

27a. $x^2 + y^2 = 4$ circle centre (0,0) radius 2



28a.

$$\vec{PB} = a - 3b$$

28b.

$$\vec{NM} = \vec{NP} + \vec{PM}$$

$$= b + \frac{1}{2}(a - 3b)$$

$$= \frac{1}{2}a - \frac{1}{2}b$$

$$\vec{NC} = \vec{NP} + \vec{PB} + \vec{BC}$$

$$= b + a - 3b + a$$

$$= 2a - 2b$$

$$= 4\left(\frac{1}{2}a - \frac{1}{2}b\right)$$

$$= 4\vec{NM}$$

$\therefore \vec{NM}$ and \vec{NC} are parallel

both pass through N \Rightarrow straight line