

AQA, OCR, Edexcel

GCSE

GCSE Maths

Edexcel November 13 Paper 1

Name:

M

M

E

Mathsmadeeasy.co.uk

Total Marks:

Edexcel Nov 13 P1

1. $\frac{6}{4} = 1.5$, so need 1.5 times as many ingredients

Butter : $60 \times 1.5 = 90g$

Chicken : $300 \times 1.5 = 450g$

Cream : $150 \times 1.5 = 225ml$

Onion : $1 \times 1.5 = 1.5$

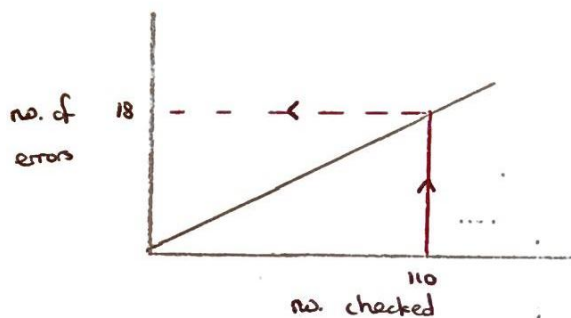
Stock : $640 \times 1.5 = 960ml$

2a.

2b.

positive

2c.



So 18 errors

3.

Area of $\Delta = \frac{1}{2} (4 \times 3) = 6cm^2$

Volume = $\Delta \times \text{length} = 6cm^2 \times 20cm = 120cm^3$

4a.

$4y + 2x + 3x + 8$

$= 4y + 5x + 8$

4b.

$9x^2 - 6xy = 3x(3x - 2y)$

4c.

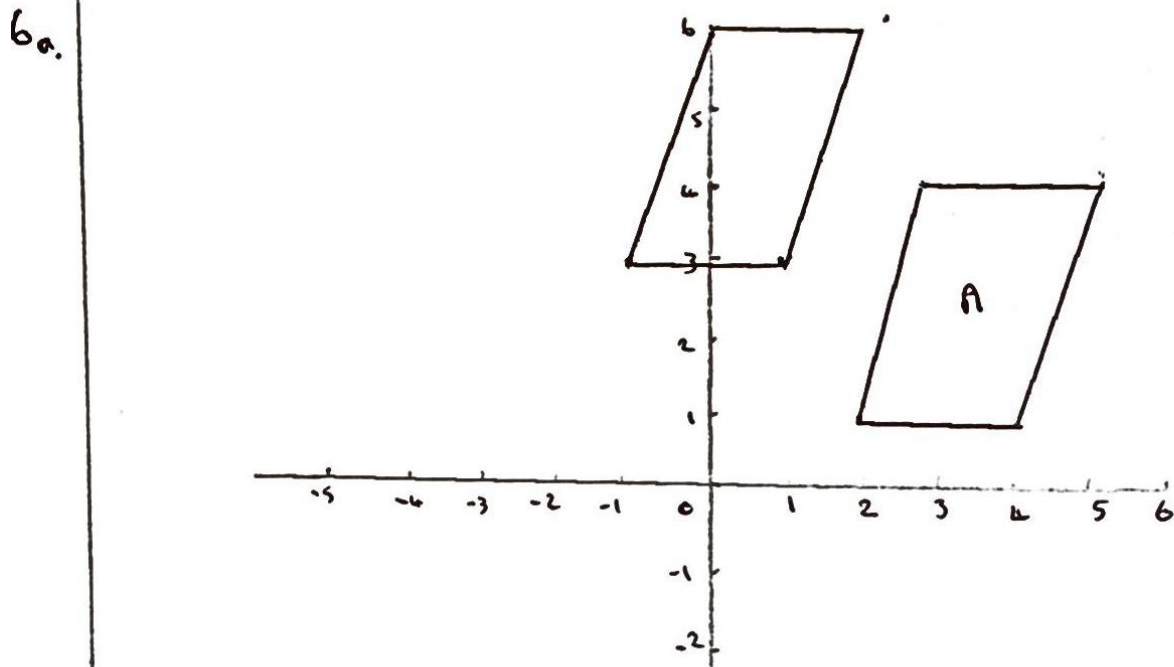
$4(x+2) = 4x + 8$

4d.

$(x-5)(x+3) = x^2 - 5x + 3x - 15 = x^2 - 2x - 15$

5a. $P(\text{not grow}) = 1 - P(\text{grow})$
 $= 1 - 0.75$
 $= 0.25$

5b. $200 \times P(\text{grow}) = 200 \times 0.75 = 150$



6b. Rotation 90° anticlockwise about origin

7i.

Cheese	Burgers
20	12
40	24
<u>60</u>	36
	48
	<u>60</u>

60 = 3 packs of cheese

60 = 5 boxes of burgers

7ii. 60 bread rolls

8. Isosceles triangle, so $3x - 5 = 19 - x$ $(+x)$
 $4x - 5 = 19$ $(+5)$
 $4x = 24$ $(\div 4)$
 $x = 6$

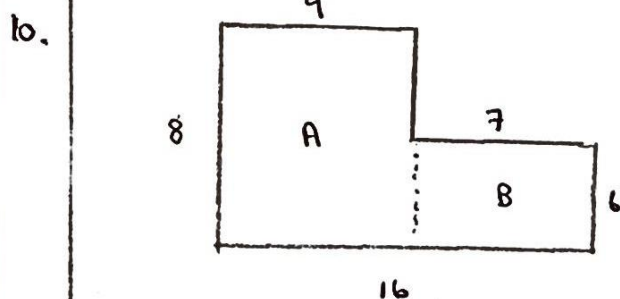
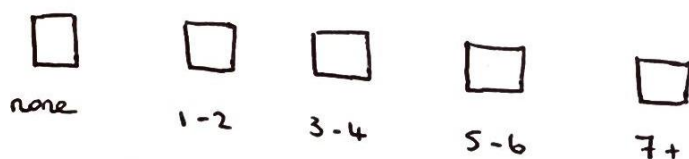
when $x = 6$, $3x - 5 = 3(6) - 5 = 18 - 5 = 13$
 $19 - x = 19 - 6 = 13$
 $2x = 2(6) = 12$

So, perimeter = $13 + 13 + 12 = 38 \text{ cm}$

9a. No time frame in ^{response} question, e.g. per week

Overlap in responses - which box for 25 years old

9b. How many hours per week do you exercise?



Area of A = $8 \times 9 = 72 \text{ m}^2$

Area of B = $7 \times 6 = 42 \text{ m}^2$

Total Area = $72 + 42 = 114 \text{ m}^2$

$114 \div 12 = 9.5 \Rightarrow$ needs 10 tins

$10 \times 19 = £190 - 30\% = 190 - 57 = £133$

only has £130 so not enough money

11.

Small : large

$$3 : 2$$

$$120 : 80$$

$$\frac{200}{5} = 40$$

Small letters : $120 \times 60p = \underline{\pounds 72}$

Large letters : 70% are 0-100g so $\pounds 1$

70% of 80

$$10\% = 8$$

$$70\% = 56$$

$56 \times \pounds 1 = \underline{\pounds 56}$ on 0-100g letters

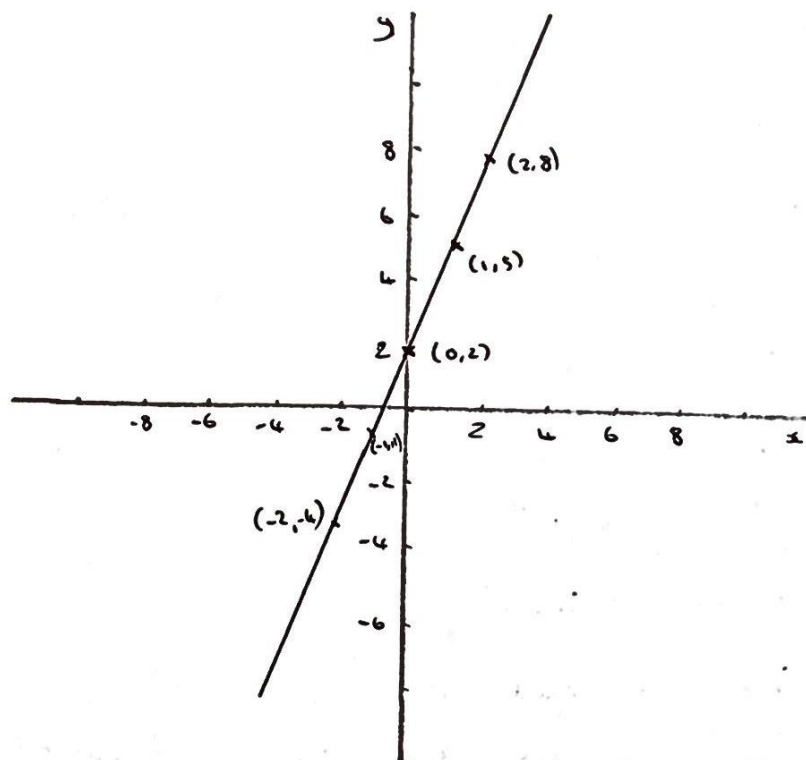
30% of 80 = 24

so 24 letters are 101-250g

$24 \times \pounds 1.50 = \underline{\pounds 36}$

Total cost : $\pounds 72 + \pounds 56 + \pounds 36$
 $= \pounds 164$

12.



13. after 10 games : $\frac{\text{Total}}{10} = 35 \Rightarrow \text{Total} = 350$

after 11 games : $\frac{\text{Total}}{11} = 33 \Rightarrow \text{Total} = 33 \times 11 = 363$

so in 11th game scored $(363 - 350)$ 13 points

11a. $5^{-1} = \frac{1}{5}$

11b. $3^{-2} = \frac{1}{3^2} = \frac{1}{9}$

11c. $9 \times 10^4 \times 3 \times 10^3$
 $= 9 \times 3 \times 10^4 \times 10^3$
 $= 27 \times 10^7$
 $= 2.7 \times 10 \times 10^7$
 $= 2.7 \times 10^8$

15. $3x + 4y = 5 \quad \times 3$
 $2x - 3y = 9 \quad \times 4$
 $\quad \quad \quad '0+0'$
 $9x + 12y = 15 \quad \textcircled{1}$
 $8x - 12y = 36 \quad \textcircled{2}$
 $17x = 51 \quad (\div 17)$
 $x = 3$

If $x = 3$, $2x - 3y = 9$
 $2(3) - 3y = 9 \quad (-6)$
 $-3y = 3 \quad (\div -3)$
 $y = -1$

16. length s.f. = $\frac{120}{20} = 6$

area s.f. = $6^2 = 36$

volume s.f. = $6^3 = 216$

So, area of large monster = $36 \times$ area of small monster

$$36 \times 300 = 10,800 \text{ cm}^2$$

17. A (3, 6, 7) M (-2, 2, 5)

$$M = \left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2}, \frac{z_1 + z_2}{2} \right)$$

$$= \left(\frac{3 + x}{2}, \frac{6 + y}{2}, \frac{7 + z}{2} \right)$$

$$\frac{3 + x}{2} = -2$$

$$3 + x = -4$$

$$x = -7$$

$$\frac{6 + y}{2} = 2$$

$$6 + y = 4$$

$$y = -2$$

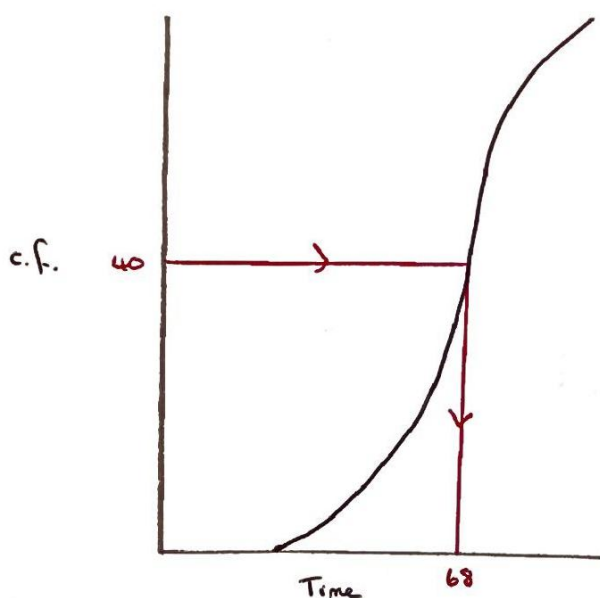
$$\frac{7 + z}{2} = 5$$

$$7 + z = 10$$

$$z = 3$$

$$B (-7, -2, 3)$$

18a



$$\frac{80}{2} = 40$$

18b. 28 swam in less than 60 seconds

$$25\% \text{ of } 80 = \frac{80}{4} = 20$$

28 > 20 so he is correct, more than 25% of swimmers swam in
28 > 25% under 60 seconds

19. $P(\text{buys fruit or veg or both}) = 1 - P(\text{buys no fruit and no veg})$

$$P(\text{buys fruit}) = 0.7 \quad P(\text{doesn't buy fruit}) = 1 - 0.7 = 0.3$$

$$P(\text{veg}) = 0.4 \quad P(\text{no veg}) = 1 - 0.4 = 0.6$$

$$P(\text{no fruit \& no veg}) = 0.3 \times 0.6 = 0.18$$

$$P(\text{fruit \& veg}) = 1 - 0.18 = 0.82$$

20a. $\frac{4(8x-2)}{3x} = 10 \quad (\times 3x)$

$$4(8x-2) = 30x \quad (\div 2)$$

$$2(8x-2) = 15x$$

$$16x - 4 = 15x \quad (-15x)$$

$$x - 4 = 0 \quad (+4)$$

$$x = 4$$

20b. $\frac{2}{y+3} - \frac{1}{y-6} = \frac{2(y-6) - (y+3)}{(y+3)(y-6)} = \frac{2y-12-y-3}{(y+3)(y-6)}$

$$= \frac{y-15}{(y+3)(y-6)}$$

21. $y \propto x^2 \Rightarrow y = kx^2$

when $x=3$, $y=36$

$$36 = k(3)^2$$

$$36 = 9k \quad (\div 9)$$

$$k = 4$$

so $y = 4x^2$

when $x=5$, $y = 4(5)^2$

$$= 4 \times 25$$

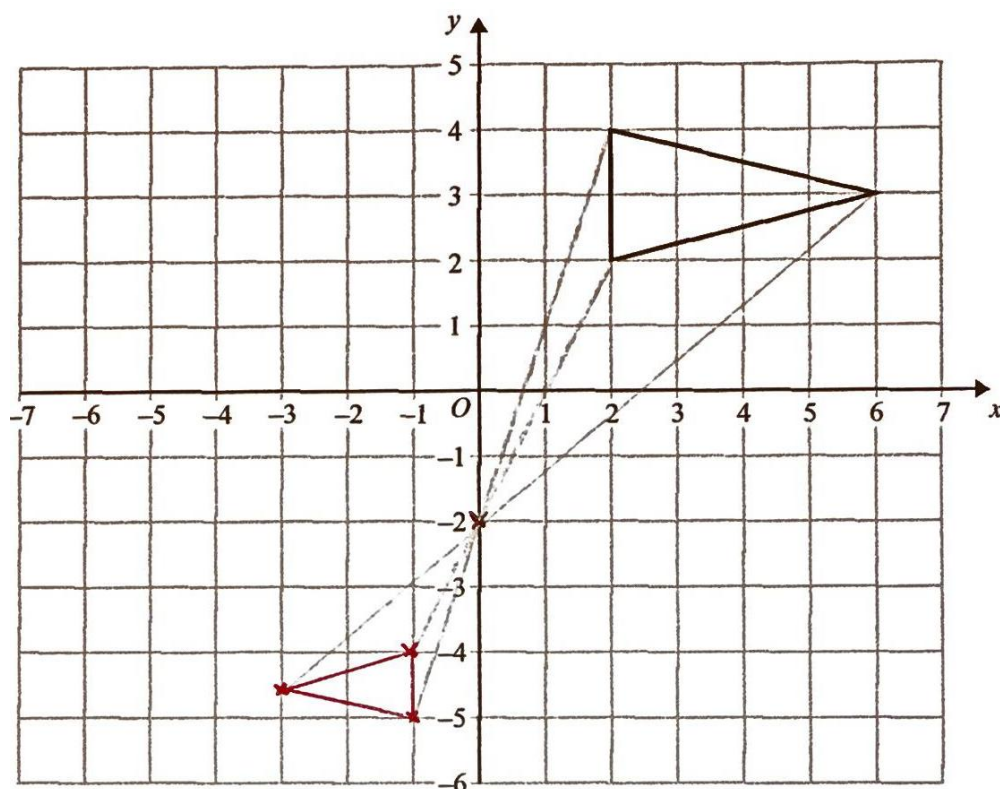
$$= 100$$

22. $\hat{ADC} = \frac{y}{2}$ (angle at centre twice angle at circumference)

$\hat{ABC} + \frac{y}{2} = 180$ (opposite angles in cyclic quadrilateral sum to 180)

$\hat{ABC} = 180 - \frac{y}{2}$

23



24a.

$$\begin{aligned}\vec{ON} &= \vec{OA} + \vec{AN} \\ &= \vec{a} + \frac{2}{3} \vec{AB} \\ &= \vec{a} + \frac{2}{3} (-\vec{a} + \vec{b}) \\ &= \frac{1}{3} \vec{a} + \frac{2}{3} \vec{b}\end{aligned}$$

$$\vec{AB} = -\vec{a} + \vec{b}$$

24b

$$\vec{OD} = \vec{a} + 2\vec{b} \qquad \vec{ON} = \frac{1}{3} (\vec{a} + 2\vec{b})$$

$$\vec{ON} = \frac{1}{3} \vec{OD} \quad \therefore \text{parallel}$$

since \vec{ON} and \vec{OD} are parallel and both go through O they are a straight line.