AQA, OCR, Edexcel

GCSE

GCSE Maths

Edexcel March 13 Paper 1

Name:

M M E

Mathsmadeeasy.co.uk

Total Marks:

Edexcel Mar 13 P1

1.

$$\begin{array}{r} 183 \\ \times\ 47 \\ \hline 1281 \\ 7320 \\ \hline 8601 \end{array}$$

: 86.01

2a. negative correlation, the closer you are to the city centre, the higher the rent.

2c. £240

3a. No time frame in question, e.g. per week

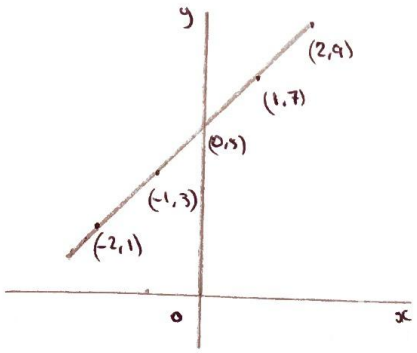
Overlapping responses, e.g. which box for £30?

3b. People in a CD are more likely to spend money on CD's than a random person.

4a.

x	-2	-1	0	1	2
y	1	3	5	7	9

4b.



5a.

	3	9	15	21	27
6n :	6	12	18	24	30

-3 (3 → 9), +6 (9 → 15)

$6n - 3$

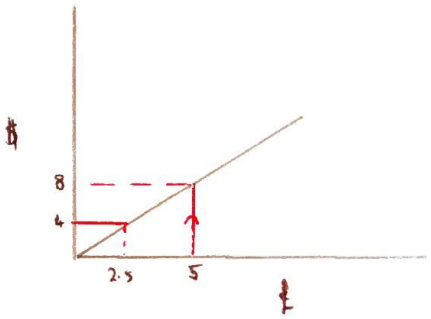
5b.

$6n - 3 = 150$ $(+3)$

$6n = 153$ $(\div 50)$

$n = 25.5$ not an integer so 150 not in sequence

6a.



$8

6b.

$600 - $200 = $400

$4 : £2.50

$400 : £250

£800 - £250 = £550

7a.

$5x + 4y + x - 7y$

$= 6x - 3y$

7b.

$7(x+2) = 7$ $(\div 7)$

$x + 2 = 1$ (-2)

$x = -1$

8. E every 9 mins 9:09 9:18 9:27 9:36

D every 12 mins 9:12 9:24 9:36

so 9:36 am

9a. $a^6 \times a^5 = a^{6+5} = a^9$

9b. $\frac{45e^6f^8}{5ef^2} = 9e^5f^6$

9c. $9^{1/2} = \sqrt{9} = 3$

10. $A\hat{E}D = 38°$ (alternate angles)

$A\hat{D}E = \frac{180 - 38}{2} = \frac{142}{2} = 71°$ (base angles in isosceles Δ)

so $x = 180 - 71 = 109°$ (angles on a straight line)

11. Car £200 × 6 = £1200

10% of 1200 = 120

20% = 240 so gets £60 for May

5% = 60

Home £350 × 4 = £1400

10% of 1400 = 140 so gets £140 for May

Total = £530 + £60 + £140

= £730

12. B : G

1 : 2

16 : 32 so 48 pupils

5 schools each sent 48

48 × 5 = 240 pupils

13. Interior angle of square is 90°

Interior angle of pentagon : $\frac{(5-2)\times 180}{5}$

$= \frac{540}{5}$

$= 108$

so $x = 360 - 90 - 108 - 108$

$= 360 - 306$

$= 54°$

14a.

Wage	c.f.
$100 < x \leq 200$	8
$100 < x \leq 300$	23
$100 < x \leq 400$	53
$100 < x \leq 500$	70
$100 < x \leq 600$	77
$100 < x \leq 700$	80

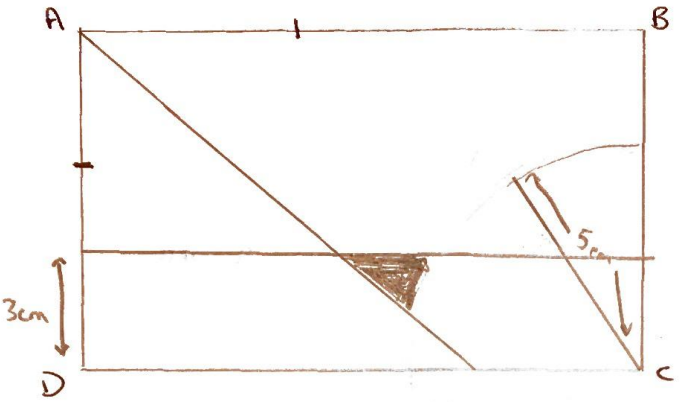
14b. Plot (200, 8) (300, 23) (400, 53) (500, 70) (600, 77) (700, 80)

14c. UQ = $\frac{80}{4} \times 3 = 60$th

LQ = $\frac{80}{4} = 20$th

IQR = 430 − 280 = 150

15.



16a $8.2 \times 10^5 = 820{,}000$

16b $0.\overset{\frown}{000}\,\overset{\frown}{376} = 3.76 \times 10^{-4}$

16c. $(2.3 \times 10^{12}) \div (4.6 \times 10^3)$

$(2.3 \div 4.6) \times (10^{12} \div 10^3)$

0.5×10^9

5×10^8

17. $\frac{4x-1}{5} + \frac{x+4}{2} = 3 \quad (\times 10)$

$2(4x-1) + 5(x+4) = 30$

$8x - 2 + 5x + 20 = 30$

$13x + 18 = 30 \quad (-18)$

$13x = 12 \quad (\div 13)$

$x = \frac{12}{13}$

19. $O\hat{B}C = 90°$ (tangent hits radius at 90°)

$B\hat{O}C = 180 - 90 - 34$

$= 56°$ (angles in Δ)

$A\hat{O}C = B\hat{O}C$ since ΔOBC is identical to ΔOAC

$D\hat{O}A = 180 - 56 - 56$

$= 68°$ (angles on a straight line)

20a. $x^2 - 12x + 27$

$= (x-9)(x-3)$

2aii. $(x-9)(x-3) = 0$

$x = 3$ or 9

20b. $y^2 - 100 = (y+10)(y-10)$ difference of two squares

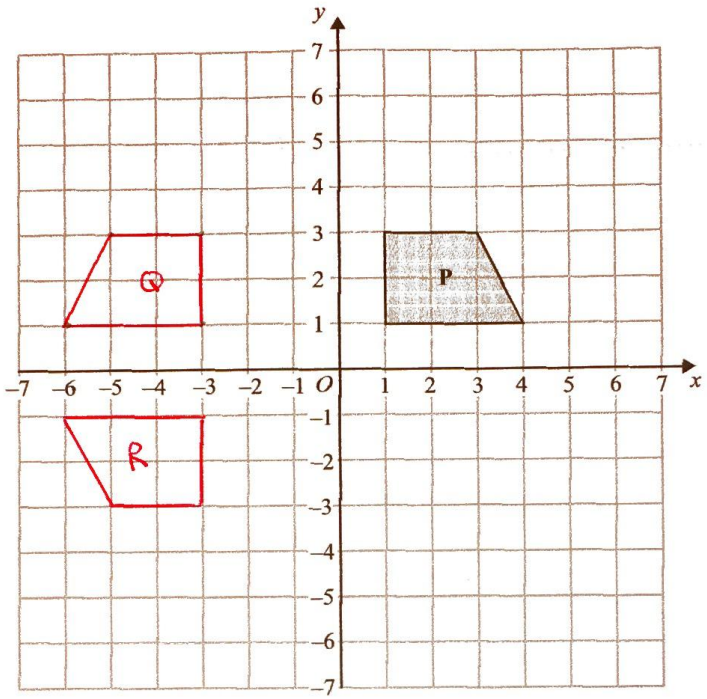
21. Two consecutive numbers: n, $n+1$

Sum: $n + n + 1 = 2n + 1$

Difference of squares: $(n+1)^2 - n^2$

$n^2 + 2n + 1 - n^2 = 2n + 1 = \text{Sum}$

18



Shape **P** is reflected in the line $x = -1$ to give shape **Q**.

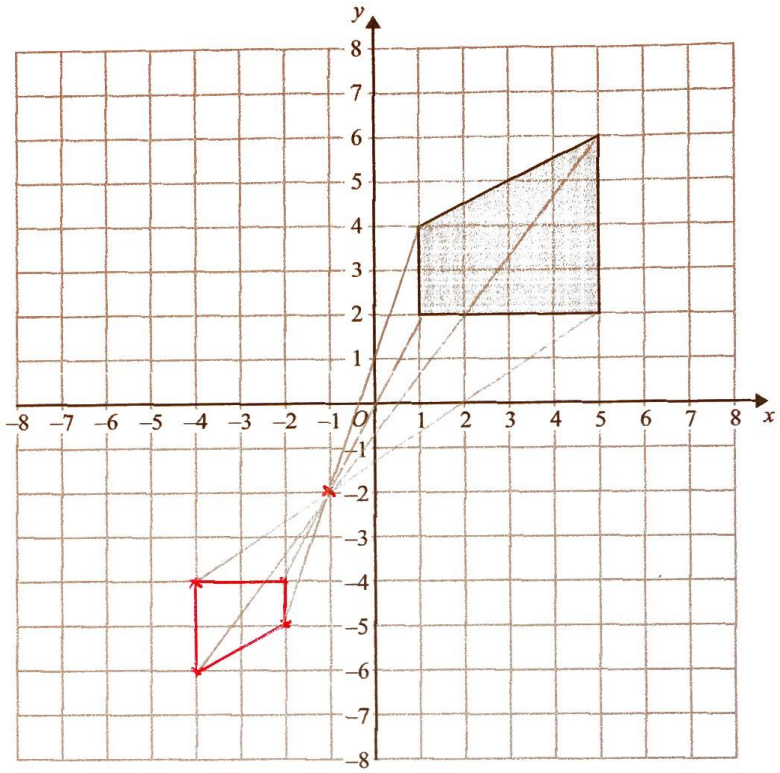
Shape **Q** is reflected in the line $y = 0$ to give shape **R**.

Describe fully the **single** transformation that maps shape **P** onto shape **R**.

Rotation 180° about (-1,0)

(Total for Question 18 is 3 marks)

22



Enlarge the shaded shape by scale factor $-\frac{1}{2}$ with centre (–1, –2).

(Total for Question 22 is 3 marks)

23. SA of Sphere $= 4\pi r^2$

So Curved SA of Hemisphere $= 2\pi r^2$

Area of base $= \pi r^2$

So total SA of hemisphere $= 2\pi r^2 + \pi r^2$

$= 3\pi r^2$

$r = 5$ $\quad 3 \times \pi \times 5^2$

$= 75\pi \text{ cm}^2$

24. $P(E) = 4/11$ $\quad P(C) = 5/11$ $\quad P(H) = 2/11$

Different: $P(E,C) + P(E,H) + P(C,H)$

$+ P(E,E) + P(H,E) + P(H,C)$

$= 2\left(\frac{4}{11} \times \frac{5}{11}\right) + 2\left(\frac{4}{11} \times \frac{2}{11}\right) + 2\left(\frac{5}{11} \times \frac{2}{11}\right)$

$= \frac{40}{121} + \frac{16}{121} + \frac{20}{121}$

$= \frac{76}{121}$

26a. $\vec{AB} = \vec{AO} + \vec{OB}$

$= -3a + 6b$

26b. $\vec{OX} = \vec{OA} + \vec{AX} = 3a + \frac{1}{3}\vec{AB}$

$= 3a + \frac{1}{3}(6b - 3a)$

$= 3a + 2b - a = 2a + 2b$

$\vec{OY} = \vec{OB} + \vec{BY} = 6b + 5a - b$

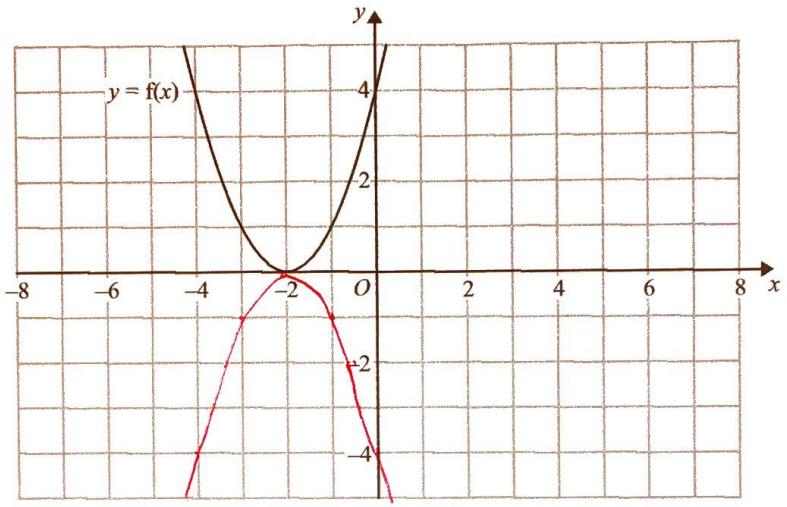
$= 5a + 5b$

$\vec{OX} = 2(a+b)$

$\vec{OY} = 5(a+b)$ $\quad \therefore \frac{2}{5}\vec{OY} = \frac{2}{5}\left(5(a+b)\right) = 2(a+b) = \vec{OX}$

25 $y = f(x)$

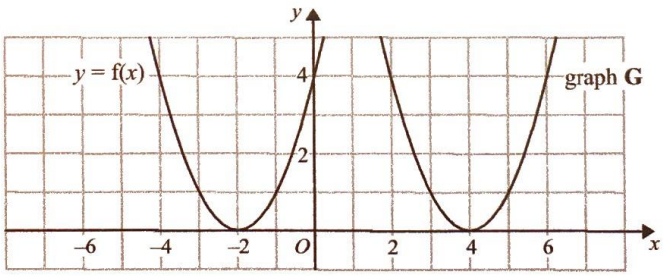
The graph of $y = f(x)$ is shown on the grid.



(a) On the grid above, sketch the graph of $y = -f(x)$.

(2)

The graph of $y = f(x)$ is shown on the grid.



The graph **G** is a translation of the graph of $y = f(x)$.

(b) Write down the equation of graph **G**.

$y = f(x - 6)$

(1)

(Total for Question 25 is 3 marks)