

Past-paper walk-through

Graphs of functions ■ E2.10

eXercise

Questions in this set

- 0580/42 N25 Q11 ■ 6 marks
- 0580/22 J25 Q15 ■ 5 marks
- 0580/41 J25 Q14 ■ 12 marks

Reading the mark scheme

- **B1** a mark that stands on its own – the point is either made or not.
- **M1** a *method* mark: the right approach, even if the number is wrong.
- **A1** an *answer* mark, and it usually needs its M mark first.
- **C1** a working mark on the way to the answer.
- **//** separates answers the examiner accepts equally.
- **ecf** = error carried forward: a later part is marked on your own earlier answer.
- **owtte** = “or words to that effect” – the wording need not match.

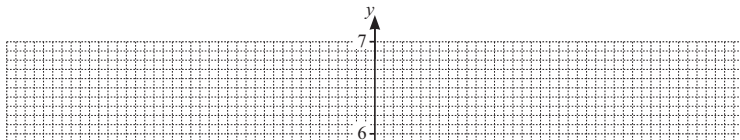
Question 11

0580/42 N25 ■ Q11 ■ 6 marks

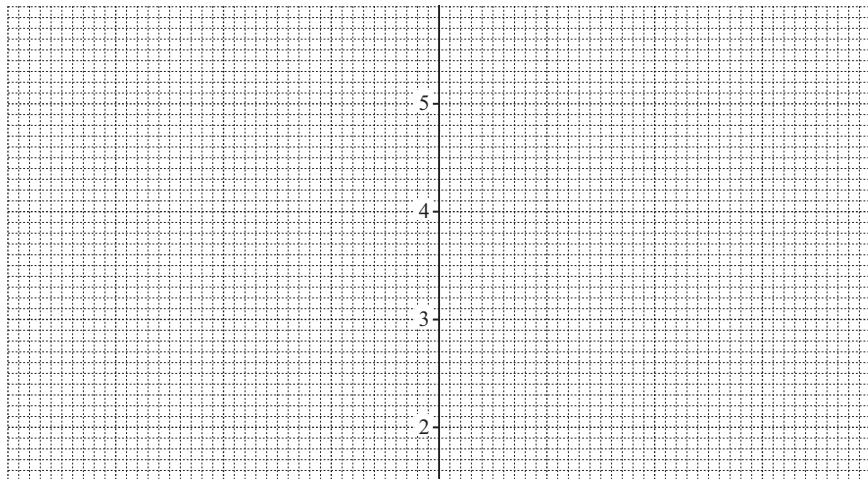
- 11** The table shows some values for $y = x^3 - 2x + 3$.
Where appropriate, values of y are given correct to 2 decimal places.

x	-2	-1.5	-1	-0.5	0	0.5	1	1.5	2
y	-1		4	3.88	3	2.13	2		7

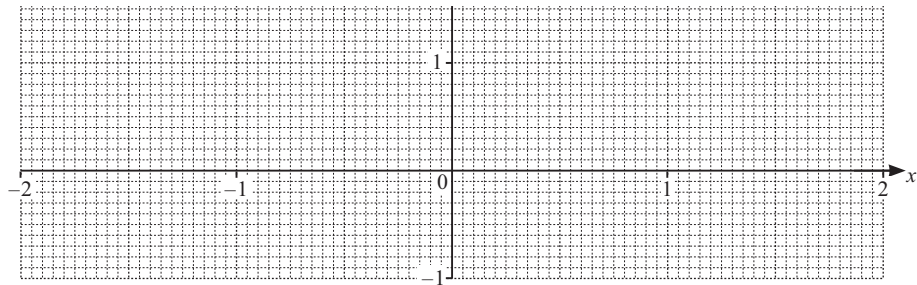
- (a) Complete the table. [2]
- (b) Draw the graph of $y = x^3 - 2x + 3$ for $-2 \leq x \leq 2$.



Question 11



Question 11



[4]

- (c) By drawing a suitable straight line on the grid, solve the equation $x^3 - 2.5x + 1 = 0$.

Question 11

Solution 11

(a)

Mark scheme

- 2.63 and 3.38
- 2 B1 for each

Solution 11

(b)

Mark scheme

- Correct graph
- 4 B3FT for 8 correct plots
- or B2FT for 6 correct plots
- or B1FT for 4 correct plots

Solution 11

(c) Mark scheme

- $y = 2 + 0.5x$ ruled (M2)
- M1 for $[y =] 2 + 0.5x$ oe soi
- e.g. $x^3 - 2x + 3 = 2 + 0.5x$
- or $y = k + 0.5x$ ruled
- or $y = kx + 2$ ruled, but not $y = 2$
- -1.85 to -1.7 , 0.4 to 0.5 ,
- 1.25 to 1.4 (A2)
- A1 for two correct values dep on (M2)

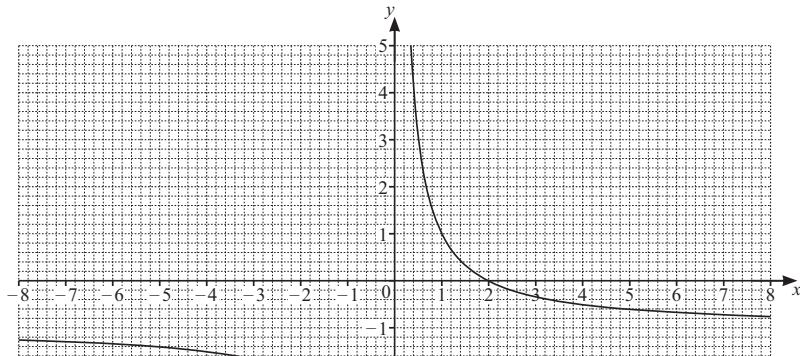
Solution 11

- If M0 or M1 scored, SC1 for three correct values
- 0580/42
- October/November 2025
- Partial Marks

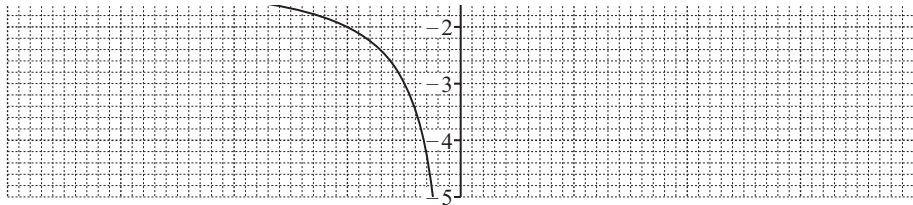
Question 15

0580/22 J25 ■ Q15 ■ 5 marks

15



Question 15



The diagram shows the graph of $y = \frac{2}{x} - 1$.

- (a) Write down the coordinates of the point where the graph crosses the x -axis.

Question 15

(b) Write down the equation of each asymptote.

Question 15

[2]

- (c) By drawing a suitable straight line on the grid, solve $\frac{2}{x} - x - 1 = 0$.

Solution 15

(a)

Mark scheme

- (2, 0)
- 1

Solution 15

(b)

Mark scheme

- $x = 0, y = -1$
- 2 B1 for each

Solution 15

(c) Mark scheme

- $y = x$ ruled
- $x = -2$ and $x = 1$ **B2**
- B1 for one correct
- or for two correct answers FT from their
- line
- 0580/22
- May/June 2025
- Partial Marks

Solution 15

- 16
- 168
- 4 B3 for answer 168
- OR M3
- for
- 2
- 6
- $\times$
- $+$
- 2

Solution 15

- 1
- 4 6
- $2 \times$
- $\times$
- $+ 2 \ 6 \ 5$
- $\times \times \text{ oe}$
- OR
- To a maximum of 2 marks ignoring extra
- areas added or subtracted (M1)
- for $\times 62$ (M1)

Solution 15

- for
- 2
- 1
- 4 6
- $2 \times \times \times$
- oe **M1**
- for $2 \times \times 6 \times 5$

Question 14

0580/41 J25 ■ Q14 ■ 12 marks

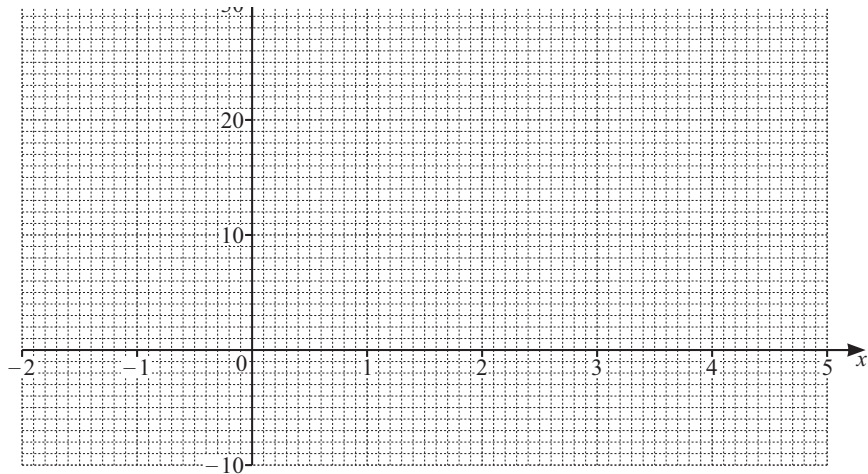
- 14 The table shows some values for $y = 5x^2 - x^3 - 4$.

x	-2	-1	0	1	2	3	4	5
y	24		-4		8	14		-4

- (a) Complete the table. [3]
- (b) On the grid, draw the graph of $y = 5x^2 - x^3 - 4$ for $-2 \leq x \leq 5$.



Question 14



Question 14

[4]

- (c) By drawing a suitable straight line on the grid, solve the equation $x^3 - 5x^2 - x + 14 = 0$.

Solution 14

(a)

Mark scheme

- 2, 0, 12
- 3 B1 for each correct value

Solution 14

(b)

Mark scheme

- Correct curve
- 4 B3FT for 7 or 8 correct points
- or B2FT for 5 or 6 correct points
- or B1FT for 3 or 4 correct points

Solution 14

(c) Mark scheme

- $y = 10 - x$ ruled (M2)
- B1 for $[y =] 10 - x$ soi
- or $y = k - x$ ruled
- or $y = 10 + kx$ ruled, but not $y = 10$
- $x = -1.7$ to -1.4
- $x = 2$
- $x = 4.4$ to 4.7 (A2)
- A1 for any two values

Solution 14

- If 0 scored, SC1 for 3 correct values