

Past-paper walk-through

Equations ■ E2.5

eXercise

Questions in this set

- 0580/23 N25 Q15 ■ 7 marks
- 0580/42 N25 Q17 ■ 3 marks
- 0580/43 N25 Q14 ■ 5 marks
- 0580/43 N25 Q16 ■ 4 marks
- 0580/22 J25 Q6 ■ 4 marks
- 0580/41 J25 Q6 ■ 2 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 15

0580/23 N25 ■ Q15 ■ 7 marks

15 Factorise.

(a) $x^2 - 7x + 12$

Question 15

(b) $5x + 10y + 6ny + 3nx$

Question 15

16 The table shows three sequences.

	1st term	2nd term	3rd term	4th term	5th term	n th term
Sequence A	8	13	18	23	28	
Sequence B	$\frac{3}{2}$	$\frac{4}{3}$	$\frac{5}{4}$	$\frac{6}{5}$	$\frac{7}{6}$	
Sequence C	$\frac{1}{4}$	$\frac{1}{2}$	1	2	4	

Complete the table to show the n th term of each sequence.

Question 15

Question 15

[5]

Solution 15

(a)

Mark scheme

- $(x - 3)(x - 4)$ final answer
- 2 B1 for $(x + a)(x + b)$ where $ab = 12$ or
- $a + b = -7$
- or $x(x - 4) - 3(x - 4)$
- or $x(x - 3) - 4(x - 3)$

Solution 15

(b)

Mark scheme

- $(5 + 3n)(x + 2y)$ final answer
- 2 B1 for $5(x + 2y) + 3n(x + 2y)$ or
- $x(5 + 3n) + 2y(5 + 3n)$

Question 17

0580/42 N25 ■ Q17 ■ 3 marks

17 Expand and simplify.

■

■

[3] , ,

[3]

Solution 17

- $2x^3 + 7x^2 - 10x - 24$ final
- answer
- 3 B2 for correct expansion unsimplified
- or for simplified four-term expression of correct form
- with three terms correct
- or B1 for one pair of brackets expanded with at least
- three terms out of four correct

Question 14

0580/43 N25 ■ Q14 ■ 5 marks

14 These expressions are all equal in value.

$$x \times 10 - y \times 11 +$$

Find the value of y .

$y = [5]$ 15 The population of a town is 54 000.

The population is decreasing exponentially at a rate of 2% per year.

(a) Calculate the decrease in the population at the end of 4 years [3]

(b) Find the number of complete years it takes for the population of 54 000 to first fall below 44 000 years [2] , ,

[5]

Solution 14

- -5
- 5 B3 for $x = 4$
- or M2 for $5/3$
- 30
- 2
- x
- x
- $+$

Solution 14

- =
- + or better
- or M1 for
- (
-)
- 5
- 2
- 3 10
- x

Solution 14

- $\times$
- —
- =
- —
- or better (M1)
- $10 - \text{their } x = y + 11$ or better
- or $5/2 \ 1 \ 1$
- 3
- $\times$

Solution 14

- —
- =
- +
- their x
- y
- or better
- Alternative method: **B4**
- for $3y + 5y = -5 - 2 - 33$
- or B3 for $-5 - 5y - 2 = 3y + 33$

Solution 14

- or B2 for (
-)
- 5
- 1
- 2
- 3
- —
- —
- y

Solution 14

$$\blacksquare = y + 11$$

$$\blacksquare \text{ or B1 for } x = -1 - y$$

Question 16

0580/43 N25 ■ Q16 ■ 4 marks

16 Expand and simplify.

(a) $7(x + 2) + 4(3x - 5)$

Question 16

(b) $(3x - y)(5x + 2y)$

Question 16

17 Make t the subject of the formula.

$$x = \frac{7t}{5-t}$$

Question 16

Solution 16

(a)

Mark scheme

- $19x - 6$ final answer
- 2 B1 for $7x + 14$ or $12x - 20$
- or for $19x - 6$ seen then spoilt

Solution 16

(b)

Mark scheme

- $15x^2 + xy - 2y^2$ final answer
- 2 B1 for $15x^2 + 6xy - 5xy - 2y^2$ with at least
- three terms correct
- 0580/43
- October/November 2025
- Partial Marks

Question 6

0580/22 J25 ■ Q6 ■ 4 marks

6 Solve.

(a) $8x + 7 = 39$

Question 6

(b) $2(5y - 1) = 24$

Question 6

-

Solution 6

(a)

Mark scheme

- 4
- 2 M1 for $8x = 39 - 7$ or better

Solution 6

(b) Mark scheme

- 2.6 or 13
- 5 oe
- 3 M1 for correct first step e.g.
- $5y - 1 = 24$
- 2 or $10y - 2 = 24$ or better (M1)
- for correctly isolating terms in y
- FT their first step
- e.g. $5y = 12 + 1$ or $10y = 24 + 2$

Question 6

0580/41 J25 ■ Q6 ■ 2 marks

6 Expand.

[2]

[2]

Solution 6

Mark scheme

- $15 \times 3 - 10 \times 2$ final answer
- 2 B1 for 15×3 or $- 10 \times 2$
- or correct answer seen in working and spoilt