

Past-paper walk-through

Algebraic manipulation ■ E2.2

eXercise

Questions in this set

- 0580/21 N25 Q17 ■ 3 marks
- 0580/22 N25 Q10 ■ 6 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 17

0580/21 N25 ■ Q17 ■ 3 marks

17 $I = M(k^2 + c^2)$

- (a)** Find the value of I when $M = 7$, $k = 3$ and $c = 2$.

Question 17

- (b) Rearrange the formula to write k in terms of I , M and c .

Solution 17

(a)

Mark scheme

- 91
- 2 M1 for $7(32 + 22)$ oe

Solution 17

(b) Mark scheme

- 2
- $\pm$
- —
- I
- c
- M
- or
- 2

Solution 17

- —
- $\pm$
- l
- M_c
- M
- final answer
- 3 M1 for correctly dividing by M (M1)
- for correctly isolating term in k^2 (M1)
- for correctly taking square root
- Maximum M2 if answer is incorrect

Solution 17

- 18

$a = 4$

$b = 16$

$c = 10$

- 4 B3 for two correct nfw

- OR B2

- for

- 2

- 4

- 20

Solution 17

- 25
- $\times$
- $\times$
- $+$
- $+$
- or B1 for three terms correct
- from
- 2
- 4
- 10

Solution 17

- 10
- 25
- x
- x
- x
- $+$
- $+$
- $+$ M1
- for $2(2x + 5) + 5$ soi
- 19

Solution 17

- 8
- 3
- —
- or
- 2
- 2 3
- —
- oe
- 3 M2 for $-x = 2(x + 4)$ oe
- or M1 for $(3-1)x$, $3-x$, $(32)x+4$

Solution 17

- (
-)
- 2
- 4
- , 3
- +
- x
- or
- (
-)

Solution 17

- 2

- 4

- 1

- 3

- —

- +

- ()

- ()

- ()

- x

Solution 17

- oe
- 0580/21
- October/November 2025
- Partial Marks

Question 10

0580/22 N25 ■ Q10 ■ 6 marks

10 $b = dm + 2mk$

(a) $d = 3.14$, $m = 7.92$ and $k = 10.16$.

By rounding each value correct to 1 significant figure, work out an estimate for b .

Question 10

(b) Rearrange the formula to make m the subject.

Question 10

Solution 10

(a) Mark scheme

- 184
- with 3, 8 and 10 shown
- 3 B1 for 3, 8 and 10 (M1)
- for $3 \times 8 + 2 \times 8 \times 10$
- or
- for correct substitution of unrounded,
- truncated or incorrectly rounded values

Solution 10

(b) Mark scheme

$m =$

- 2
- +
- b
- d
- k final answer
- 2 M1 for $[b =] m(d + 2k)$