

Past-paper walk-through

Types of number ■ E1.1

eXercise

Questions in this set

- 0580/22 N25 Q13 ■ 3 marks
- 0580/23 N25 Q7 ■ 2 marks
- 0580/22 J25 Q8 ■ 2 marks
- 0580/41 J25 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 13

0580/22 N25 ■ Q13 ■ 3 marks

13

$$M = 2^7 \times 3^3 \times 5^2$$

- (a)** Write $14M$ as a product of its prime factors.
Give your answer in index form.

Question 13

- (b) R is an integer.
 $\frac{M}{R}$ is a cube number.

Find the smallest possible value of R .

Question 13

14 Find the value of

(a) $3^2 \div 3^{-2}$

Question 13

(b) $16^{-\frac{3}{2}}$.

Solution 13

(a)

Mark scheme

- $28 \times 33 \times 52 \times 7[1]$ cao
- 2 M1 for $[14 =] 2 \times 7$ soi

Solution 13

(b) Mark scheme

- 50
- or
- -86 400
- 2 M1 for $23 \times 33 [\times 50]$ or $26 \times 33 [\times 50]$ oe
- or 24×52 or 2×52 oe
- or SC1 for answers
- -50, [-]400, [-]1350, [-]3200, [-]10 800,
- 86 400 oe

Question 7

0580/23 N25 ■ Q7 ■ 2 marks

- 7 (a) The sum of all the prime numbers less than 10 is equal to 17.

Find the sum of all the prime numbers less than 16.

Question 7

(b) x is an integer.

The sum of the prime numbers greater than 6 and less than x is equal to 18.

Find a possible value for x .

Question 7

1 / 21

Solution 7

(a)

Mark scheme

- 41
- 2 B1 for 11 or 13 seen with no more than
- one incorrect value

Solution 7

(b)

Mark scheme

- 12 or 13/1

Question 8

0580/22 J25 ■ Q8 ■ 2 marks

8 Find the highest common factor (HCF) of 36 and 54 [2]

[2]

Solution 8

Mark scheme

- 18
- 2 B1 for answer 2, 3, 6 or 9
- or M1 for answer 2×3^2 oe
- or for $2 \times 2 \times 3 \times 3$ and $2 \times 3 \times 3 \times 3$
- or 2 correct factor trees or tables

Question 10

0580/41 J25 ■ Q10 ■ 6 marks

10 (a) Write down **all** the factors of 18.

Question 10

(b) Factorise.

$$3y - xy + 15 - 5x$$

Question 10

(c) $3y - xy + 15 - 5x = 18$

where x and y are positive integers.

Using your answers to **part (a)** and **part (b)**, find one possible value of x and the corresponding value of y .

Question 10

Question 10

- 11** A warehouse has a floor area of 800 m^2 .
The plan of the warehouse is drawn to a scale of 1 : 50.

Calculate the floor area on the plan.
Give your answer in square centimetres.

Question 10

-

Solution 10

(a)

Mark scheme

- 1, 2, 3, 6, 9, 18
- 2 B1 for a list with one error or one omission

Solution 10

(b)

Mark scheme

- $(y + 5)(3 - x)$ final answer
- 2 M1 for $y(3 - x) + 5(3 - x)$
- or for $3(y + 5) - x(y + 5)$
- or for correct answer seen and spoilt

Solution 10

(c) Mark scheme

- $x = 2, y = 13$
- or
- $x = 1, y = 4$
- 2 FT their (b) for M1 M1
- for their 3—
- =
- x
- a and their

Solution 10

- 5
- +
- =
- y
- b
- where