Functional Skills Maths Level 2

Topic Workbook

10 Topics × 20 Questions = 200 Practice Questions

Practise every topic tested in the L2 exam. Circle your answer then check against the standalone answer key.

1. Standard Form

20 questions

Question 1 (1 mark)

Write 56,000 in standard form.

- A) 5.6 × 10^4
- B) 56 × 10^3
- C) 5.6 × 10^3
- D) 5.6 × 10^5

Question 2 (1 mark)

Write 0.0084 in standard form.

- A) 8.4 × 10^-3
- B) 84 × 10^-4
- C) 8.4 × 10^-2
- D) 8.4 × 10^3

Question 3 (1 mark)

Write 3.2 × 10^5 as an ordinary number.

- A) 320,000
- B) 32,000
- C) 3,200,000
- D) 3,200

Question 4 (1 mark)

Write 7.1 × 10^-2 as an ordinary number.

- A) 0.071
- B) 0.71
- C) 71
- D) 710

Question 5 (1 mark)

Calculate (4 × 10^3) × (2 × 10^2) in standard form.

- A) 8 × 10^5
- B) 8 × 10^6
- C) 6 × 10^5
- D) 8 × 10^2

Question 6 (1 mark)

Calculate (6 × 10^5) ÷ (3 × 10^2).

- A) 2 × 10^3
- B) 2 × 10^2
- C) 18 × 10^3
- D) 2 × 10^7

Question 7 (1 mark)

Which is larger: 3.9 × 10^4 or 4.1 × 10^3?

- A) 3.9 × 10^4
- B) 4.1 × 10^3
- C) Equal
- D) Cannot tell

Question 8 (1 mark)

Distance to the Sun is 1.5 × 10^8 km. As an ordinary number?

- A) 150,000,000
- B) 15,000,000
- C) 1,500,000,000
- D) 1,500,000

Question 9 (1 mark)

A cell is 4.5 × 10^-3 m wide. In mm?

- A) 4.5 mm
- B) 0.045 mm
- C) 0.0045 mm
- D) 0.45 mm

Question 10 (1 mark)

(5.2 × 10^4) + (3.8 × 10^3) in standard form?

- A) 5.58 × 10^4
- B) 9 × 10^4
- C) 5.58 × 10^3
- D) 9 × 10^7

Question 11 (1 mark)

Write 920,000,000 in standard form.

- A) 9.2 × 10^8
- B) 92 × 10^7
- C) 9.2 × 10^9
- D) 0.92 × 10^9

Question 12 (1 mark)

Write 0.000005 in standard form.

- A) 5 × 10^-6
- B) 5 × 10^-5
- C) 50 × 10^-7
- D) 5 × 10^-4

Question 13 (1 mark)

(8.4 × 10^5) − (2.1 × 10^5) = ?

- A) 6.3 × 10^5
- B) 6.3 × 10^10
- C) 10.5 × 10^5

■ D) 6.3 × 10^12

Question 14 (1 mark)

A human hair is 7 × 10^-5 m thick. About how many fit in 1 cm?

- A) About 143
- B) About 14
- C) About 1,430
- D) About 70

Question 15 (1 mark)

0.25 × 10^4 in correct standard form?

- A) 2.5 × 10^3
- B) 0.25 × 10^4
- C) 25 × 10^2
- D) 2.5 × 10^4

Question 16 (1 mark)

(3 × 10^2) × (5 × 10^3) = ?

- A) 1.5 × 10^6
- B) 15 × 10^6
- C) 1.5 × 10^5
- D) 1.5 × 10^4

Question 17 (1 mark)

Order smallest to largest: 2.1 × 10^3, 9.8 × 10^2, 1.5 × 10^4

- A) 980, 2100, 15000
- B) 15000, 2100, 980
- C) 2100, 15000, 980
- D) 980, 15000, 2100

Question 18 (1 mark)

Computer does 2.4 × 10^9 calculations/sec. In 1 minute?

- A) 1.44 × 10^11
- B) 2.4 × 10^11
- C) 1.44 × 10^10
- D) 14.4 × 10^9

Question 19 (1 mark)

45.6 × 10^4 in correct standard form?

- A) 4.56 × 10^5
- B) 45.6 × 10^4
- C) 4.56 × 10^4
- D) 0.456 × 10^5

Question 20 (1 mark)

(1.2 × 10^5)^2 = ?

- A) 1.44 × 10^10
- B) 2.4 × 10^10
- C) 1.44 × 10^25
- D) 1.2 × 10^10

2. Algebra & Equations

20 questions

Question 1 (1 mark)

Simplify: 4x + 3y − x + 5y

- A) 3x + 8y
- B) 5x + 8y
- C) 3x − 2y
- D) 4x + 8y

Question 2 (1 mark)

Solve: 5x − 8 = 17

- A) x = 5
- B) x = 1.8
- C) x = 25
- D) x = 9

Question 3 (1 mark)

Solve: 3(2x + 1) = 21

- A) x = 3
- B) x = 7
- C) x = 4
- D) x = 10

Question 4 (1 mark)

Solve: 4x + 5 = 2x + 13

- A) x = 4
- B) x = 9
- C) x = 3
- D) x = 6

Question 5 (1 mark)

Expand: 3(4x − 2)

- A) 12x − 6
- B) 12x − 2
- C) 7x − 2
- D) 12x + 6

Question 6 (1 mark)

Expand: $2(x + 4) + 3(x - 1)$

- A) $5x + 5$
- B) $5x + 11$
- C) $5x + 7$
- D) $6x + 5$

Question 7 (1 mark)

Factorise: $8x - 12$

- A) $4(2x - 3)$
- B) $2(4x - 6)$
- C) $8(x - 12)$
- D) $4(2x + 3)$

Question 8 (1 mark)

Solve: $x/3 + 2 = 7$

- A) $x = 15$
- B) $x = 3$
- C) $x = 27$
- D) $x = 5$

Question 9 (1 mark)

Simplify: $2a \times 3a$

- A) $6a^2$
- B) $5a^2$
- C) $6a$
- D) $5a$

Question 10 (1 mark)

Solve: $2(x - 3) = x + 4$

- A) $x = 10$
- B) $x = 7$
- C) $x = 1$
- D) $x = -1$

Question 11 (1 mark)

Expand: $(x + 2)(x + 5)$

- A) $x^2 + 7x + 10$
- B) $x^2 + 3x + 7$
- C) $x^2 + 10x + 7$
- D) $2x + 7$

Question 12 (1 mark)

Expand: $(x - 3)(x + 4)$

- A) $x^2 + x - 12$
- B) $x^2 - x - 12$
- C) $x^2 + 7x - 12$

■ D) $x^2 + x + 12$

Question 13 (1 mark)

Factorise: 5xy + 10x

- A) 5x(y + 2)
- B) 5(xy + 2x)
- C) x(5y + 10)
- D) 10x(y + 1)

Question 14 (1 mark)

Solve: 6x − 1 = 2x + 11

- A) x = 3
- B) x = 5
- C) x = 2
- D) x = 10

Question 15 (1 mark)

Simplify: $3x^2 + 5x - x^2 + 2x$

- A) $2x^2 + 7x$
- B) $4x^2 + 7x$
- C) $2x^2 + 3x$
- D) $4x^2 + 3x$

Question 16 (1 mark)

Expand: 4(x + 3) − 2(x − 5)

- A) 2x + 22
- B) 2x + 7
- C) 6x + 22
- D) 2x − 7

Question 17 (1 mark)

Make x the subject: y = 3x + 7

- A) x = (y − 7)/3
- B) x = y/3 − 7
- C) x = 3y + 7
- D) x = (y + 7)/3

Question 18 (1 mark)

Solve: 5(x + 2) = 3(x + 8)

- A) x = 7
- B) x = 5
- C) x = 12
- D) x = 3

Question 19 (1 mark)

Simplify: $(4x^3) / (2x)$

- A) $2x^2$
- B) $2x^3$
- C) $8x^2$
- D) $4x^2$

Question 20 (1 mark)

Substitute $x = 3$ into $2x^2 - 5x + 1$

- A) 4
- B) 22
- C) −2
- D) 10

3. Percentages & Interest

20 questions

Question 1 (1 mark)

35% of £240?

- A) £84
- B) £156
- C) £24
- D) £840

Question 2 (1 mark)

TV £450 reduced 15%. Sale price?

- A) £382.50
- B) £67.50
- C) £435
- D) £517.50

Question 3 (1 mark)

House £180,000 +22%. New value?

- A) £219,600
- B) £39,600
- C) £158,400
- D) £202,000

Question 4 (1 mark)

£5,000 at 3% compound for 2 years. Total?

- A) £5,304.50
- B) £5,300
- C) £5,150
- D) £5,309

Question 5 (1 mark)

£12,000 at 4.5% compound for 3 years. Total?

- A) £13,685.69
- B) £13,620
- C) £13,800
- D) £13,500

Question 6 (1 mark)

Coat £91 after a 30% discount. Original?

- A) £130
- B) £118.30
- C) £121
- D) £63.70

Question 7 (1 mark)

Phone £540 including 20% VAT. Pre-VAT?

- A) £450
- B) £432
- C) £648
- D) £500

Question 8 (1 mark)

Population grew from 8,000 to 9,200. % increase?

- A) 15%
- B) 12%
- C) 20%
- D) 8%

Question 9 (1 mark)

Car depreciates 20%/year from £16,000. After 2 years?

- A) £10,240
- B) £12,800
- C) £9,600
- D) £11,200

Question 10 (1 mark)

Express 45 as a percentage of 180.

- A) 25%
- B) 45%
- C) 4%
- D) 22.5%

Question 11 (1 mark)

£3,500 at 2.5% simple interest for 4 years. Total interest?

- A) £350
- B) £87.50
- C) £3,850

■ D) £367.50

Question 12 (1 mark)

Salary £28,000 with a 4.5% pay rise. New salary?

- A) £29,260
- B) £26,740
- C) £1,260
- D) £32,500

Question 13 (1 mark)

Item costs £72 after a 10% increase. Original?

- A) £65.45
- B) £64.80
- C) £79.20
- D) £62

Question 14 (1 mark)

£7,000 at 5.2% compound for 2 years. Total?

- A) £7,746.93
- B) £7,728
- C) £7,364
- D) £7,750

Question 15 (1 mark)

Gym fee rose from £32 to £37.60. % increase?

- A) 17.5%
- B) 15%
- C) 5.6%
- D) 20%

Question 16 (1 mark)

After a 25% decrease, share is worth £6.75. Original price?

- A) £9
- B) £8.44
- C) £5.06
- D) £7.50

Question 17 (1 mark)

£20,000 at 3.8% compound for 4 years. Total?

- A) £23,216.55
- B) £23,040
- C) £24,000
- D) £23,200

Question 18 (1 mark)

Profit £3,600 from £24,000 revenue. Margin?

- A) 15%
- B) 3.6%
- C) 36%
- D) 6.67%

Question 19 (1 mark)

Bill £186 including 20% VAT. Pre-VAT?

- A) £155
- B) £148.80
- C) £223.20
- D) £166

Question 20 (1 mark)

Painting rose from £800 to £1,240. % increase?

- A) 55%
- B) 44%
- C) 64%
- D) 35.5%

4. Ratio & Proportion

20 questions

Question 1 (1 mark)

Simplify 12:18

- A) 2:3
- B) 3:4
- C) 4:6
- D) 6:9

Question 2 (1 mark)

Share £450 in ratio 2:3

- A) £180, £270
- B) £225, £225
- C) £150, £300
- D) £200, £250

Question 3 (1 mark)

Recipe for 6 uses 240g flour. For 9?

- A) 360g
- B) 400g
- C) 160g
- D) 320g

Question 4 (1 mark)

Boys:girls = 3:5. 24 boys. Girls?

- A) 40
- B) 15
- C) 32
- D) 20

Question 5 (1 mark)

Share £720 in ratio 1:3:5

- A) £80, £240, £400
- B) £120, £240, £360
- C) £72, £216, £432
- D) £80, £320, £320

Question 6 (1 mark)

Scale 1:25,000. 4cm on map = ? km real

- A) 1 km
- B) 10 km
- C) 0.1 km
- D) 25 km

Question 7 (1 mark)

5 workers complete in 12 days. How many days for 4 workers?

- A) 15
- B) 9.6
- C) 16
- D) 10

Question 8 (1 mark)

Cement:sand = 1:4. Sand needed for 3kg cement?

- A) 12 kg
- B) 7 kg
- C) 0.75 kg
- D) 4 kg

Question 9 (1 mark)

Car does 8L per 100km. Distance on 30L?

- A) 375 km
- B) 240 km
- C) 267 km
- D) 300 km

Question 10 (1 mark)

£1 = €1.15. Convert £350.

- A) €402.50
- B) €304.35
- C) €465

■ D) €350

Question 11 (1 mark)

Mortar mixed 1:5. Total 42kg. Cement?

- A) 7 kg
- B) 8.4 kg
- C) 35 kg
- D) 6 kg

Question 12 (1 mark)

3 painters do a job in 8 hours. 6 painters?

- A) 4 hours
- B) 16 hours
- C) 2.5 hours
- D) 12 hours

Question 13 (1 mark)

Pass:fail = 7:3. 35 passed. Total?

- A) 50
- B) 38
- C) 45
- D) 42

Question 14 (1 mark)

200ml milk for 4 pancakes. For 10?

- A) 500 ml
- B) 800 ml
- C) 50 ml
- D) 400 ml

Question 15 (1 mark)

Ribbon 1.8m cut in ratio 2:3:7. Longest piece?

- A) 1.05 m
- B) 0.9 m
- C) 0.45 m
- D) 1.26 m

Question 16 (1 mark)

£1 = $1.28. Convert $640.

- A) £500
- B) £819.20
- C) £498.44
- D) £512

Question 17 (1 mark)

Speed 60mph for 2.5 hours. Distance?

- A) 150 miles
- B) 24 miles
- C) 62.5 miles
- D) 120 miles

Question 18 (1 mark)

Red:blue paint = 3:2. Need red for 8L blue?

- A) 12 litres
- B) 5.3 litres
- C) 4 litres
- D) 16 litres

Question 19 (1 mark)

150 bottles in 5 min. How many in 1 hour?

- A) 1,800
- B) 900
- C) 3,000
- D) 450

Question 20 (1 mark)

Fuel £1.45/L. 48L tank. Cost?

- A) £69.60
- B) £33.10
- C) £72
- D) £62.40

5. Area, Perimeter & Volume

20 questions

Question 1 (1 mark)

Rectangle 8.5m × 4.2m. Area?

- A) 35.7 m²
- B) 25.4 m²
- C) 12.7 m²
- D) 42 m²

Question 2 (1 mark)

Circle radius 5cm. Area?

- A) 78.5 cm²
- B) 31.4 cm²
- C) 157.1 cm²
- D) 25 cm²

Question 3 (1 mark)

Trapezium parallel sides 6m, 10m, height 4m. Area?

- A) 32 m^2
- B) 24 m^2
- C) 40 m^2
- D) 64 m^2

Question 4 (1 mark)

Cylinder radius 3, height 8. Volume?

- A) 226.2 cm^3
- B) 75.4 cm^3
- C) 452.4 cm^3
- D) 72 cm^3

Question 5 (1 mark)

Triangle base 12, height 7. Area?

- A) 42 cm^2
- B) 84 cm^2
- C) 19 cm^2
- D) 36 cm^2

Question 6 (1 mark)

Perimeter of 15m × 8m rectangle?

- A) 46 m
- B) 120 m
- C) 23 m
- D) 46 m^2

Question 7 (1 mark)

Circumference of circle diameter 14cm?

- A) 44.0 cm
- B) 22.0 cm
- C) 615.8 cm
- D) 87.9 cm

Question 8 (1 mark)

Cuboid 5 × 4 × 3 m. Volume?

- A) 60 m^3
- B) 12 m^3
- C) 94 m^2
- D) 47 m^3

Question 9 (1 mark)

Semicircle diameter 10cm. Area?

- A) 39.3 cm^2
- B) 78.5 cm^2
- C) 31.4 cm^2

■ D) 15.7 cm²

Question 10 (1 mark)

Cylinder diameter 10, height 20. Volume?

- A) 1,570.8 cm³
- B) 3,141.6 cm³
- C) 628.3 cm³
- D) 785.4 cm³

Question 11 (1 mark)

Room 6.5m × 4m. Carpet £28/m². Cost?

- A) £728
- B) £294
- C) £364
- D) £182

Question 12 (1 mark)

Cone radius 4, height 9. Volume?

- A) 150.8 cm³
- B) 452.4 cm³
- C) 113.1 cm³
- D) 48 cm³

Question 13 (1 mark)

10×6 rectangle minus 2×2 square. Area?

- A) 56 m²
- B) 60 m²
- C) 64 m²
- D) 52 m²

Question 14 (1 mark)

Cube side 4cm. Surface area?

- A) 96 cm²
- B) 64 cm²
- C) 16 cm²
- D) 24 cm²

Question 15 (1 mark)

Garden 20m × 12m with circular pond radius 3m. Grass area?

- A) 211.7 m²
- B) 240 m²
- C) 28.3 m²
- D) 268.3 m²

Question 16 (1 mark)

Square 30m garden with 2m wide path around. Path area?

- A) 256 m²
- B) 128 m²
- C) 64 m²
- D) 900 m²

Question 17 (1 mark)

Cylinder volume 500, radius 4. Height (1dp)?

- A) 9.9 cm
- B) 39.8 cm
- C) 2.5 cm
- D) 31.3 cm

Question 18 (1 mark)

L-shape: 8×5 + 3×4. Area?

- A) 52 m²
- B) 40 m²
- C) 55 m²
- D) 34 m²

Question 19 (1 mark)

Circle area 50cm². Radius (2dp)?

- A) 3.99 cm
- B) 7.98 cm
- C) 15.92 cm
- D) 25 cm

Question 20 (1 mark)

Triangular prism: base 6, height 4, length 10. Volume?

- A) 120 cm³
- B) 240 cm³
- C) 60 cm³
- D) 24 cm³

6. Pythagoras & Geometry

20 questions

Question 1 (1 mark)

Right triangle sides 5, 12. Hypotenuse?

- A) 13 cm
- B) 17 cm
- C) 7 cm
- D) 60 cm

Question 2 (1 mark)

Hypotenuse 10, one side 6. Other side?

- A) 8 cm
- B) 4 cm
- C) 16 cm
- D) 14 cm

Question 3 (1 mark)

Ladder 6m, top reaches 5.5m up wall. Base distance?

- A) 2.4 m
- B) 0.5 m
- C) 11.5 m
- D) 8.1 m

Question 4 (1 mark)

Rectangle 7×4. Diagonal?

- A) 8.1 cm
- B) 11 cm
- C) 5.7 cm
- D) 3 cm

Question 5 (1 mark)

Isosceles: equal sides 10, base 12. Height?

- A) 8 cm
- B) 6 cm
- C) 14 cm
- D) 2 cm

Question 6 (1 mark)

Walk 8km N then 15km E. Direct distance?

- A) 17 km
- B) 23 km
- C) 7 km
- D) 12 km

Question 7 (1 mark)

Ramp 5m long, rises 1.2m. Horizontal distance?

- A) 4.85 m
- B) 3.8 m
- C) 6.2 m
- D) 5.14 m

Question 8 (1 mark)

Square diagonal 10cm. Side?

- A) 7.07 cm
- B) 5 cm
- C) 14.14 cm

■ D) 50 cm

Question 9 (1 mark)

Sides 9, 12. Hypotenuse?

- A) 15 cm
- B) 21 cm
- C) 3 cm
- D) 7.9 cm

Question 10 (1 mark)

TV 48cm wide × 36cm tall. Diagonal?

- A) 60 cm
- B) 84 cm
- C) 12 cm
- D) 42 cm

Question 11 (1 mark)

Kite string 50m, 30m horizontal. Vertical height?

- A) 40 m
- B) 20 m
- C) 80 m
- D) 58 m

Question 12 (1 mark)

Triangle sides 3, 4, 5. Right-angled?

- A) Yes
- B) No
- C) Not enough info
- D) Only if isosceles

Question 13 (1 mark)

Pole shadow 8m, wire from top to shadow tip 10m. Pole height?

- A) 6 m
- B) 12 m
- C) 2 m
- D) 18 m

Question 14 (1 mark)

Field 120m × 90m. Diagonal?

- A) 150 m
- B) 210 m
- C) 30 m
- D) 105 m

Question 15 (1 mark)

Ladder 3m, top 2.8m up. Base distance?

- A) 1.08 m
- B) 0.2 m
- C) 5.8 m
- D) 4.12 m

Question 16 (1 mark)

Sides 7, 24. Hypotenuse?

- A) 25
- B) 31
- C) 17
- D) 49

Question 17 (1 mark)

Hypotenuse 13, one side 5. Other?

- A) 12
- B) 8
- C) 18
- D) 7

Question 18 (1 mark)

Walk 200m E then 150m N. Direct?

- A) 250 m
- B) 350 m
- C) 50 m
- D) 175 m

Question 19 (1 mark)

Equilateral triangle side 8. Height?

- A) 6.93 cm
- B) 4 cm
- C) 8 cm
- D) 5.66 cm

Question 20 (1 mark)

Mast 20m tall, wire to ground 15m away. Wire length?

- A) 25 m
- B) 35 m
- C) 5 m
- D) 17.5 m

7. Statistics & Probability

20 questions

Question 1 (1 mark)

Mean of 12, 15, 18, 11, 14?

- A) 14
- B) 15
- C) 12
- D) 70

Question 2 (1 mark)

Median of 3, 7, 9, 2, 5, 8, 4?

- A) 5
- B) 7
- C) 4
- D) 9

Question 3 (1 mark)

Mode of 4, 7, 2, 7, 3, 7, 5, 2?

- A) 7
- B) 2
- C) 4
- D) 5

Question 4 (1 mark)

Range of 23, 45, 12, 67, 34?

- A) 55
- B) 67
- C) 12
- D) 33

Question 5 (1 mark)

P(6 on fair dice)?

- A) 1/6
- B) 1/3
- C) 6/6
- D) 1/12

Question 6 (1 mark)

Mean of 10(×4), 20(×6), 30(×5), 40(×5)?

- A) 25
- B) 30
- C) 20
- D) 100

Question 7 (1 mark)

P(red) = 0.3. 200 spins. Expected reds?

- A) 60
- B) 30
- C) 140

- D) 6

Question 8 (1 mark)

3 coin flips. P(all heads)?

- A) 1/8
- B) 1/3
- C) 3/8
- D) 1/6

Question 9 (1 mark)

Bag 4R, 3B, 5G. P(not green)?

- A) 7/12
- B) 5/12
- C) 1/3
- D) 3/4

Question 10 (1 mark)

Two dice. P(double)?

- A) 1/6
- B) 1/36
- C) 6/12
- D) 1/3

Question 11 (1 mark)

Mean of 8 numbers is 15. Total?

- A) 120
- B) 1.875
- C) 23
- D) 8

Question 12 (1 mark)

Median of 14, 18, 22, 25, 29, 31?

- A) 23.5
- B) 22
- C) 25
- D) 24

Question 13 (1 mark)

P(A) = 0.4, P(B) = 0.3 independent. P(A and B)?

- A) 0.12
- B) 0.7
- C) 0.1
- D) 0.52

Question 14 (1 mark)

Mean of 2(×3), 5(×7), 8(×4), 10(×6)?

- A) 6.45
- B) 5
- C) 8
- D) 6

Question 15 (1 mark)

P(heart from 52 cards)?

- A) 1/4
- B) 13/52
- C) 1/13
- D) 4/52

Question 16 (1 mark)

Frequency: lowest 12, highest 48. Range?

- A) 36
- B) 60
- C) 12
- D) 48

Question 17 (1 mark)

Mean 24 for 5 values. Remove 14. New mean?

- A) 26.5
- B) 22
- C) 28
- D) 30

Question 18 (1 mark)

P(rain) = 0.65. P(no rain)?

- A) 0.35
- B) 0.65
- C) 1.65
- D) 0.3

Question 19 (1 mark)

P(A□B) = P(A) + P(B) − P(A∩B). P(A)=0.5, P(B)=0.4, P(A∩B)=0.2. P(A□B)?

- A) 0.7
- B) 0.9
- C) 0.3
- D) 1.1

Question 20 (1 mark)

Mean 30 for 10 values. Add 52. New mean?

- A) 32
- B) 31
- C) 34

■ D) 30

8. Inequalities & Sequences

20 questions

Question 1 (1 mark)

Solve: 2x + 5 > 13

- A) x > 4
- B) x > 9
- C) x < 4
- D) x > 6

Question 2 (1 mark)

Solve: 3x − 4 ≤ 11

- A) x ≤ 5
- B) x ≤ 7
- C) x ≥ 5
- D) x < 2.3

Question 3 (1 mark)

Integers where −3 < n ≤ 2

- A) −2, −1, 0, 1, 2
- B) −3, −2, −1, 0, 1, 2
- C) −2, −1, 0, 1
- D) −3, −2, −1, 0, 1

Question 4 (1 mark)

Solve: 4(x + 1) < 24

- A) x < 5
- B) x < 6
- C) x < 7
- D) x > 5

Question 5 (1 mark)

Solve: 5 − 2x ≥ −3

- A) x ≤ 4
- B) x ≥ 4
- C) x ≤ 1
- D) x ≥ −4

Question 6 (1 mark)

Next in: 3, 7, 11, 15, ...

- A) 19
- B) 17
- C) 20
- D) 21

Question 7 (1 mark)

nth term of 5, 8, 11, 14, ...

- A) 3n + 2
- B) 3n + 5
- C) 5n + 3
- D) n + 3

Question 8 (1 mark)

10th term of 2n + 7

- A) 27
- B) 17
- C) 29
- D) 20

Question 9 (1 mark)

Solve: 2x + 1 > x + 5

- A) x > 4
- B) x > 6
- C) x > 3
- D) x < 4

Question 10 (1 mark)

Next in: 1, 4, 9, 16, ...

- A) 25
- B) 20
- C) 32
- D) 21

Question 11 (1 mark)

Solve: 3(2x − 1) ≥ 2x + 9

- A) x ≥ 3
- B) x ≥ 2
- C) x ≤ 3
- D) x ≥ 6

Question 12 (1 mark)

Simplify: −1 ≤ 2x < 6

- A) −0.5 ≤ x < 3
- B) −1 ≤ x < 6
- C) −2 ≤ x < 12
- D) 0 ≤ x < 3

Question 13 (1 mark)

nth term of 7, 12, 17, 22, ...

- A) 5n + 2
- B) 5n + 7
- C) 7n + 5

■ D) 5n – 2

Question 14 (1 mark)

Geometric: 2, 6, 18, 54, ... Next?

- A) 162
- B) 72
- C) 108
- D) 216

Question 15 (1 mark)

Solve: $-4 \leq 3x + 2 \leq 14$

- A) $-2 \leq x \leq 4$
- B) $-4 \leq x \leq 14$
- C) $-6 \leq x \leq 12$
- D) $0 \leq x \leq 4$

Question 16 (1 mark)

20th term of $4n - 3$

- A) 77
- B) 83
- C) 80
- D) 17

Question 17 (1 mark)

Sequence 100, 95, 90, ... First term below 0?

- A) 22nd
- B) 20th
- C) 21st
- D) 100th

Question 18 (1 mark)

Solve: $x/2 + 3 > 7$

- A) $x > 8$
- B) $x > 2$
- C) $x > 20$
- D) $x < 8$

Question 19 (1 mark)

Fibonacci 1, 1, 2, 3, 5, 8, ... Next two?

- A) 13, 21
- B) 11, 16
- C) 10, 18
- D) 14, 22

Question 20 (1 mark)

nth term of 10, 7, 4, 1, −2, ...

- A) 13 − 3n
- B) 10 − 3n
- C) −3n + 7
- D) 3n + 10

9. Scale, Conversion & Rates

20 questions

Question 1 (1 mark)

Scale 1:50,000. 3.5cm on map = ? km real

- A) 1.75 km
- B) 17.5 km
- C) 0.175 km
- D) 175 km

Question 2 (1 mark)

65mph × 3 hours = ? miles

- A) 195 miles
- B) 21.7 miles
- C) 62 miles
- D) 68 miles

Question 3 (1 mark)

240km in 3.5 hours. Speed?

- A) 68.6 km/h
- B) 840 km/h
- C) 80 km/h
- D) 60 km/h

Question 4 (1 mark)

£1 = $1.32. Convert £250.

- A) $330
- B) $189.39
- C) $251.32
- D) $500

Question 5 (1 mark)

$594 at £1 = $1.32

- A) £450
- B) £784.08
- C) £462
- D) £594

Question 6 (1 mark)

Scale 1:200. 4cm on plan = ? real

- A) 8 m
- B) 800 m
- C) 0.8 m
- D) 80 m

Question 7 (1 mark)

42mpg, £1.55/L, 210 miles (1 gal = 4.55L). Fuel cost?

- A) £35.27
- B) £42
- C) £22.50
- D) £5

Question 8 (1 mark)

Convert 30 m/s to km/h

- A) 108 km/h
- B) 30 km/h
- C) 1,800 km/h
- D) 0.83 km/h

Question 9 (1 mark)

Mass 540g, volume 200cm³. Density?

- A) 2.7 g/cm³
- B) 108,000
- C) 0.37
- D) 340

Question 10 (1 mark)

Scale 1:100. Room 5m × 3m. On plan?

- A) 5cm × 3cm
- B) 50cm × 30cm
- C) 0.5cm × 0.3cm
- D) 500cm × 300cm

Question 11 (1 mark)

Convert 72 km/h to m/s

- A) 20 m/s
- B) 72 m/s
- C) 259.2 m/s
- D) 4,320 m/s

Question 12 (1 mark)

Tap 2.5 L/min. Time to fill 600L?

- A) 240 min
- B) 4 hours
- C) 1,500 min

■ D) 24 min

Question 13 (1 mark)

£1 = €1.18. €826 in £?

■ A) £700
■ B) £974.68
■ C) £826
■ D) £708

Question 14 (1 mark)

Density 450 people/km². Area 120 km². Population?

■ A) 54,000
■ B) 3.75
■ C) 570
■ D) 45,000

Question 15 (1 mark)

1cm = 2.5m. Building 14m tall. On drawing?

■ A) 5.6 cm
■ B) 35 cm
■ C) 3.5 cm
■ D) 56 cm

Question 16 (1 mark)

500ml £1.80 vs 750ml £2.55. Better value (per ml)?

■ A) 750ml (0.34p/ml)
■ B) 500ml (0.36p/ml)
■ C) Same
■ D) Cannot tell

Question 17 (1 mark)

125 miles in 1h 40min. Speed (mph)?

■ A) 75 mph
■ B) 83.3 mph
■ C) 125 mph
■ D) 62.5 mph

Question 18 (1 mark)

Factory makes 84 items/hour. Total in 7.5 hours?

■ A) 630
■ B) 11.2
■ C) 91.5
■ D) 588

Question 19 (1 mark)

£1 = 1.52 CHF. Convert 912 CHF

- A) £600
- B) £1,386.24
- C) £760
- D) £500

Question 20 (1 mark)

Car uses 7.2L per 100km. 315km journey. Fuel needed?

- A) 22.68 L
- B) 43.75 L
- C) 2,268 L
- D) 4.375 L

10. Real-World Multi-Step Problems

20 questions

Question 1 (1 mark)

Energy bill: 25p/day standing + 13.5p/kWh. 91 days, 3,800kWh. Total?

- A) £535.75
- B) £513
- C) £22.75
- D) £512.75

Question 2 (1 mark)

Paint covers 14m²/L. Walls 45m². Litres needed?

- A) 4 (round up from 3.21)
- B) 45
- C) 3
- D) 14

Question 3 (1 mark)

Car hire £28/day + 15p/mile. 5 days, 320 miles. Cost?

- A) £188
- B) £140
- C) £48
- D) £460

Question 4 (1 mark)

Tiles 30cm × 30cm. Floor 3.6m × 2.4m. How many?

- A) 96
- B) 8.64
- C) 864
- D) 9.6

Question 5 (1 mark)

Salary £32,000. 0% tax on first £12,570, 20% on rest. Take-home?

- A) £28,114
- B) £25,600
- C) £19,430
- D) £32,000

Question 6 (1 mark)

Fence 1.8m panels for 14.4m garden. How many posts?

- A) 9
- B) 8
- C) 7
- D) 16

Question 7 (1 mark)

3 workers at £12.50/hr for 8 hours + £340 materials. Total?

- A) £640
- B) £300
- C) £100
- D) £740

Question 8 (1 mark)

Drive 45min at 60mph + 30min at 40mph. Total miles?

- A) 65 miles
- B) 100 miles
- C) 50 miles
- D) 80 miles

Question 9 (1 mark)

Muffin recipe scales 8 → 20. Original: 200g flour, 150g sugar, 2 eggs. New?

- A) 500g, 375g, 5 eggs
- B) 400g, 300g, 4 eggs
- C) 250g, 187g, 3 eggs
- D) 1000g, 750g, 10 eggs

Question 10 (1 mark)

Carpet £24.99/m². Room 4.5m × 3.8m. £400 budget — enough?

- A) No (£427.33)
- B) Yes (£399.84)
- C) Yes (£380)
- D) No (£450)

Question 11 (1 mark)

Electricity: day 16p/kWh, night 8p/kWh. 12 day kWh + 5 night kWh. Cost?

- A) £2.32
- B) £1.92
- C) £2.72

■ D) £1.36

Question 12 (1 mark)

Holiday: 2 × £189 flights + €995 ÷ 1.15. Cost in £?

- A) £1,243
- B) £1,800
- C) £989
- D) £1,500

Question 13 (1 mark)

Mortgage £1,028.25/month × 12 × 25 years. Total paid?

- A) £308,475
- B) £185,000
- C) £1,028.25
- D) £25,000

Question 14 (1 mark)

Box 2.4kg. Pallet max 500kg. Boxes?

- A) 208
- B) 200
- C) 250
- D) 120

Question 15 (1 mark)

Parking: £3.50 first 2 hours, £1.80/hr after. 5.5 hours?

- A) £9.80
- B) £9.90
- C) £7.30
- D) £12.80

Question 16 (1 mark)

Wallpaper: 10m × 52cm roll. Wall 2.4m × 4m. Rolls needed?

- A) 2 rolls
- B) 1 roll
- C) 3 rolls
- D) 4 rolls

Question 17 (1 mark)

Council tax £1,892, 25% single-occupant discount. Monthly cost?

- A) £118.25
- B) £157.67
- C) £47.30
- D) £141.90

Question 18 (1 mark)

Builder: £2,400 + 3 × £350 + £180. + 20% VAT. Total?

- A) £4,356
- B) £3,530
- C) £3,630
- D) £3,780

Question 19 (1 mark)

Best buy: 12-pack £4.50, 9-pack £3.24, 4-pack £1.52

- A) 9-pack (36p each)
- B) 12-pack (37.5p)
- C) 4-pack (38p)
- D) All same

Question 20 (1 mark)

Compare unit prices to decide best deal across multiple options.

- A) Pack B cheapest
- B) Pack A cheapest
- C) Same
- D) Cannot tell