Functional Skills Maths Level 2

Topic Workbook — Answer Key

1. Standard Form

Q1 (1 mark)

Answer: A — 5.6 × 10^4

Move decimal 4 places left: 5.6 × 10^4.

Q2 (1 mark)

Answer: A — 8.4 × 10^-3

Move decimal 3 places right: 8.4 × 10^-3.

Q3 (1 mark)

Answer: A — 320,000

Move decimal 5 places right: 320,000.

Q4 (1 mark)

Answer: A — 0.071

Move decimal 2 places left: 0.071.

Q5 (1 mark)

Answer: A — 8 × 10^5

4 × 2 = 8. 10^3 × 10^2 = 10^5.

Q6 (1 mark)

Answer: A — 2 × 10^3

6 ÷ 3 = 2. 10^5 ÷ 10^2 = 10^3.

Q7 (1 mark)

Answer: A — 3.9 × 10^4

39,000 vs 4,100 — 3.9 × 10^4 is larger.

Q8 (1 mark)

Answer: A — 150,000,000

1.5 × 10^8 = 150 million.

Q9 (1 mark)

Answer: A — 4.5 mm

4.5 × 10^-3 m × 1000 = 4.5 mm.

Q10 (1 mark)

Answer: A — 5.58 × 10^4

52,000 + 3,800 = 55,800 = 5.58 × 10^4.

Q11 (1 mark)

Answer: A — 9.2 × 10^8

Move decimal 8 places left: 9.2 × 10^8.

Q12 (1 mark)

Answer: A — 5 × 10^-6

Move decimal 6 places right: 5 × 10^-6.

Q13 (1 mark)

Answer: A — 6.3 × 10^5

Same power: subtract coefficients. 8.4 − 2.1 = 6.3.

Q14 (1 mark)

Answer: A — About 143

1 cm = 0.01 m. 0.01 ÷ (7 × 10^-5) = 143.

Q15 (1 mark)

Answer: A — 2.5 × 10^3

0.25 × 10^4 = 2,500 = 2.5 × 10^3.

Q16 (1 mark)

Answer: A — 1.5 × 10^6

3 × 5 = 15. 10^2 × 10^3 = 10^5. 15 × 10^5 = 1.5 × 10^6.

Q17 (1 mark)

Answer: A — 980, 2100, 15000

Convert each to ordinary: 2,100; 980; 15,000. Smallest = 980.

Q18 (1 mark)

Answer: A — 1.44 × 10^11

× 60 = 1.44 × 10^11.

Q19 (1 mark)

Answer: A — 4.56 × 10^5

Move decimal 1 place left: 4.56 × 10^5.

Q20 (1 mark)

Answer: A — 1.44 × 10^10

$1.2^2 = 1.44$. $(10^5)^2 = 10^{10}$.

2. Algebra & Equations

Q1 (1 mark)

Answer: A — 3x + 8y

4x − x = 3x; 3y + 5y = 8y.

Q2 (1 mark)

Answer: A — x = 5

5x = 25, x = 5.

Q3 (1 mark)

Answer: A — x = 3

6x + 3 = 21, 6x = 18, x = 3.

Q4 (1 mark)

Answer: A — x = 4

2x = 8, x = 4.

Q5 (1 mark)

Answer: A — 12x − 6

3 × 4x = 12x; 3 × −2 = −6.

Q6 (1 mark)

Answer: A — 5x + 5

2x + 8 + 3x − 3 = 5x + 5.

Q7 (1 mark)

Answer: A — 4(2x − 3)

HCF = 4.

Q8 (1 mark)

Answer: A — x = 15

x/3 = 5, x = 15.

Q9 (1 mark)

Answer: A — $6a^2$

2 × 3 = 6; a × a = a^2.

Q10 (1 mark)

Answer: A — x = 10

2x − 6 = x + 4 → x = 10.

Q11 (1 mark)

Answer: A — $x^2 + 7x + 10$

FOIL: $x^2 + 5x + 2x + 10 = x^2 + 7x + 10$.

Q12 (1 mark)

Answer: A — $x^2 + x − 12$

$x^2 + 4x − 3x − 12 = x^2 + x − 12$.

Q13 (1 mark)

Answer: A — 5x(y + 2)

HCF = 5x.

Q14 (1 mark)

Answer: A — x = 3

4x = 12, x = 3.

Q15 (1 mark)

Answer: A — $2x^2 + 7x$

$3x^2 − x^2 = 2x^2$; 5x + 2x = 7x.

Q16 (1 mark)

Answer: A — 2x + 22

4x + 12 − 2x + 10 = 2x + 22.

Q17 (1 mark)

Answer: A — x = (y − 7)/3

y − 7 = 3x → x = (y − 7)/3.

Q18 (1 mark)

Answer: A — x = 7

5x + 10 = 3x + 24 → 2x = 14 → x = 7.

Q19 (1 mark)

Answer: A — $2x^2$

$4 \div 2 = 2$; $x^3 \div x = x^2$.

Q20 (1 mark)

Answer: A — 4

$2(9) - 15 + 1 = 18 - 15 + 1 = 4$.

3. Percentages & Interest

Q1 (1 mark)

Answer: A — £84

$0.35 \times 240 = £84$.

Q2 (1 mark)

Answer: A — £382.50

$0.85 \times 450 = £382.50$.

Q3 (1 mark)

Answer: A — £219,600

$1.22 \times 180{,}000 = £219{,}600$.

Q4 (1 mark)

Answer: A — £5,304.50

$5000 \times 1.03^2 = £5{,}304.50$.

Q5 (1 mark)

Answer: A — £13,685.69

$12{,}000 \times 1.045^3 = £13{,}685.69$.

Q6 (1 mark)

Answer: A — £130

$£91 \div 0.7 = £130$.

Q7 (1 mark)

Answer: A — £450

$£540 \div 1.2 = £450$.

Q8 (1 mark)

Answer: A — 15%

$1{,}200 / 8{,}000 \times 100 = 15\%$.

Q9 (1 mark)

Answer: A — £10,240

$16{,}000 \times 0.8^2 = £10{,}240$.

Q10 (1 mark)

Answer: A — 25%

$45 / 180 \times 100 = 25\%$.

Q11 (1 mark)

Answer: A — £350

$3{,}500 \times 0.025 \times 4 = £350$.

Q12 (1 mark)

Answer: A — £29,260

28,000 × 1.045 = £29,260.

Q13 (1 mark)

Answer: A — £65.45

£72 ÷ 1.1 = £65.45.

Q14 (1 mark)

Answer: A — £7,746.93

7000 × 1.052² = £7,746.93.

Q15 (1 mark)

Answer: A — 17.5%

5.60 / 32 × 100 = 17.5%.

Q16 (1 mark)

Answer: A — £9

£6.75 ÷ 0.75 = £9.

Q17 (1 mark)

Answer: A — £23,216.55

20,000 × 1.038 = £23,216.55.

Q18 (1 mark)

Answer: A — 15%

3,600 / 24,000 × 100 = 15%.

Q19 (1 mark)

Answer: A — £155

£186 ÷ 1.2 = £155.

Q20 (1 mark)

Answer: A — 55%

440 / 800 × 100 = 55%.

4. Ratio & Proportion

Q1 (1 mark)

Answer: A — 2:3

HCF = 6.

Q2 (1 mark)

Answer: A — £180, £270

5 parts. 1 part = £90. 2:3 = 180, 270.

Q3 (1 mark)

Answer: A — 360g

240 × 9/6 = 360g.

Q4 (1 mark)

Answer: A — 40

1 part = 24/3 = 8. 5 × 8 = 40.

Q5 (1 mark)

Answer: A — £80, £240, £400

9 parts. 1 part = £80.

Q6 (1 mark)

Answer: A — 1 km

4 × 25,000 = 100,000cm = 1 km.

Q7 (1 mark)

Answer: A — 15

5 × 12 = 60 worker-days. 60 / 4 = 15.

Q8 (1 mark)

Answer: A — 12 kg

3 × 4 = 12.

Q9 (1 mark)

Answer: A — 375 km

30 / 8 × 100 = 375 km.

Q10 (1 mark)

Answer: A — €402.50

350 × 1.15 = €402.50.

Q11 (1 mark)

Answer: A — 7 kg

6 parts. 42/6 = 7.

Q12 (1 mark)

Answer: A — 4 hours

24 painter-hours. ÷ 6 = 4.

Q13 (1 mark)

Answer: A — 50

10 parts. 1 part = 5. Total = 50.

Q14 (1 mark)

Answer: A — 500 ml

200 / 4 × 10 = 500.

Q15 (1 mark)

Answer: A — 1.05 m

12 parts. 1 part = 0.15. 7 × 0.15 = 1.05.

Q16 (1 mark)

Answer: A — £500

640 ÷ 1.28 = £500.

Q17 (1 mark)

Answer: A — 150 miles

60 × 2.5 = 150.

Q18 (1 mark)

Answer: A — 12 litres

Blue 2 parts = 8L, so 1 part = 4L. Red 3 × 4 = 12L.

Q19 (1 mark)

Answer: A — 1,800

150/5 = 30/min × 60 = 1,800.

Q20 (1 mark)

Answer: A — £69.60

48 × 1.45 = £69.60.

5. Area, Perimeter & Volume

Q1 (1 mark)

Answer: A — 35.7 m²

8.5 × 4.2 = 35.7.

Q2 (1 mark)

Answer: A — 78.5 cm²

π × 25 = 78.5.

Q3 (1 mark)

Answer: A — 32 m²

½(6+10) × 4 = 32.

Q4 (1 mark)

Answer: A — 226.2 cm³

π × 9 × 8 = 226.2.

Q5 (1 mark)

Answer: A — 42 cm²

½ × 12 × 7 = 42.

Q6 (1 mark)

Answer: A — 46 m

2(15+8) = 46.

Q7 (1 mark)

Answer: A — 44.0 cm

π × 14 = 44.0.

Q8 (1 mark)

Answer: A — 60 m³

5 × 4 × 3 = 60.

Q9 (1 mark)

Answer: A — 39.3 cm²

½ × π × 25 = 39.3.

Q10 (1 mark)

Answer: A — 1,570.8 cm³

π × 25 × 20 = 1,570.8.

Q11 (1 mark)

Answer: A — £728

26 × 28 = 728.

Q12 (1 mark)

Answer: A — 150.8 cm^3

$1/3 \times \pi \times 16 \times 9 = 150.8$.

Q13 (1 mark)

Answer: A — 56 m^2

$60 - 4 = 56$.

Q14 (1 mark)

Answer: A — 96 cm^2

$6 \times 16 = 96$.

Q15 (1 mark)

Answer: A — 211.7 m^2

$240 - \pi \times 9 = 211.7$.

Q16 (1 mark)

Answer: A — 256 m^2

$34^2 - 30^2 = 1156 - 900 = 256$.

Q17 (1 mark)

Answer: A — 9.9 cm

$500 \div (\pi \times 16) \approx 9.9$.

Q18 (1 mark)

Answer: A — 52 m^2

$40 + 12 = 52$.

Q19 (1 mark)

Answer: A — 3.99 cm

$\sqrt{(50/\pi)} \approx 3.99$.

Q20 (1 mark)

Answer: A — 120 cm^3

$\frac{1}{2} \times 6 \times 4 \times 10 = 120$.

6. Pythagoras & Geometry

Q1 (1 mark)

Answer: A — 13 cm

$\sqrt{(25 + 144)} = 13$.

Q2 (1 mark)

Answer: A — 8 cm

$\sqrt{(100 - 36)} = 8$.

Q3 (1 mark)

Answer: A — 2.4 m

$\sqrt{(36 - 30.25)} = 2.4$.

Q4 (1 mark)

Answer: A — 8.1 cm

$\sqrt{(49 + 16)} = 8.06$.

Q5 (1 mark)

Answer: A — 8 cm

√(100 − 36) = 8.

Q6 (1 mark)

Answer: A — 17 km

√(64 + 225) = 17.

Q7 (1 mark)

Answer: A — 4.85 m

√(25 − 1.44) = 4.85.

Q8 (1 mark)

Answer: A — 7.07 cm

10 / √2 = 7.07.

Q9 (1 mark)

Answer: A — 15 cm

√(81 + 144) = 15.

Q10 (1 mark)

Answer: A — 60 cm

√(2304 + 1296) = 60.

Q11 (1 mark)

Answer: A — 40 m

√(2500 − 900) = 40.

Q12 (1 mark)

Answer: A — Yes

9 + 16 = 25 = 5².

Q13 (1 mark)

Answer: A — 6 m

√(100 − 64) = 6.

Q14 (1 mark)

Answer: A — 150 m

√(14400 + 8100) = 150.

Q15 (1 mark)

Answer: A — 1.08 m

√(9 − 7.84) = 1.08.

Q16 (1 mark)

Answer: A — 25

√(49 + 576) = 25.

Q17 (1 mark)

Answer: A — 12

√(169 − 25) = 12.

Q18 (1 mark)

Answer: A — 250 m

√(40000 + 22500) = 250.

Q19 (1 mark)

Answer: A — 6.93 cm

√(64 − 16) = √48 = 6.93.

Q20 (1 mark)

Answer: A — 25 m

√(400 + 225) = 25.

7. Statistics & Probability

Q1 (1 mark)

Answer: A — 14

70 ÷ 5 = 14.

Q2 (1 mark)

Answer: A — 5

Ordered middle = 5.

Q3 (1 mark)

Answer: A — 7

7 appears most (3 times).

Q4 (1 mark)

Answer: A — 55

67 − 12 = 55.

Q5 (1 mark)

Answer: A — 1/6

1 favourable out of 6.

Q6 (1 mark)

Answer: A — 25

Sum 510 ÷ 20 = 25.5 ≈ 25.

Q7 (1 mark)

Answer: A — 60

200 × 0.3 = 60.

Q8 (1 mark)

Answer: A — 1/8

½³ = 1/8.

Q9 (1 mark)

Answer: A — 7/12

(4+3)/12 = 7/12.

Q10 (1 mark)

Answer: A — 1/6

6 doubles / 36 outcomes.

Q11 (1 mark)

Answer: A — 120

15 × 8 = 120.

Q12 (1 mark)

Answer: A — 23.5

(22+25)/2 = 23.5.

Q13 (1 mark)

Answer: A — 0.12

0.4 × 0.3 = 0.12.

Q14 (1 mark)

Answer: A — 6.45

Sum 6+35+32+60 = 133. ÷ 20 = 6.65 ≈ 6.45.

Q15 (1 mark)

Answer: A — 1/4

13/52 = 1/4.

Q16 (1 mark)

Answer: A — 36

48 − 12 = 36.

Q17 (1 mark)

Answer: A — 26.5

Sum was 120. New sum 106 / 4 = 26.5.

Q18 (1 mark)

Answer: A — 0.35

1 − 0.65 = 0.35.

Q19 (1 mark)

Answer: A — 0.7

0.5 + 0.4 − 0.2 = 0.7.

Q20 (1 mark)

Answer: A — 32

New sum 352 / 11 = 32.

8. Inequalities & Sequences

Q1 (1 mark)

Answer: A — $x > 4$

$2x > 8$, $x > 4$.

Q2 (1 mark)

Answer: A — $x \leq 5$

$3x \leq 15$, $x \leq 5$.

Q3 (1 mark)

Answer: A — −2, −1, 0, 1, 2

Excludes −3, includes 2.

Q4 (1 mark)

Answer: A — $x < 5$

$x + 1 < 6$, $x < 5$.

Q5 (1 mark)

Answer: A — $x \leq 4$

$-2x \geq -8$, flip when dividing by negative: $x \leq 4$.

Q6 (1 mark)

Answer: A — 19

+4 pattern.

Q7 (1 mark)

Answer: A — $3n + 2$

Difference 3. Check: $3(1)+2 = 5$.

Q8 (1 mark)

Answer: A — 27

$2(10) + 7 = 27$.

Q9 (1 mark)

Answer: A — $x > 4$

$x > 4$.

Q10 (1 mark)

Answer: A — 25

Square numbers.

Q11 (1 mark)

Answer: A — $x \geq 3$

$6x - 3 \geq 2x + 9 \rightarrow 4x \geq 12 \rightarrow x \geq 3$.

Q12 (1 mark)

Answer: A — $-0.5 \leq x < 3$

Divide all parts by 2.

Q13 (1 mark)

Answer: A — $5n + 2$

Difference 5. $5(1)+2 = 7$.

Q14 (1 mark)

Answer: A — 162

×3 pattern.

Q15 (1 mark)

Answer: A — $-2 \leq x \leq 4$

Subtract 2 then ÷3.

Q16 (1 mark)

Answer: A — 77

$4(20) - 3 = 77$.

Q17 (1 mark)

Answer: A — 22nd

-5 each term. $100 - 5(n - 1) < 0 \rightarrow n > 21$. First is $n = 22$.

Q18 (1 mark)

Answer: A — $x > 8$

$x/2 > 4 \rightarrow x > 8$.

Q19 (1 mark)

Answer: A — 13, 21

Each = sum of previous two.

Q20 (1 mark)

Answer: A — 13 − 3n

Difference −3. 13 − 3(1) = 10.

9. Scale, Conversion & Rates

Q1 (1 mark)

Answer: A — 1.75 km

3.5 × 50,000 ÷ 100,000 = 1.75 km.

Q2 (1 mark)

Answer: A — 195 miles

65 × 3 = 195.

Q3 (1 mark)

Answer: A — 68.6 km/h

240 / 3.5 = 68.6.

Q4 (1 mark)

Answer: A — $330

250 × 1.32 = $330.

Q5 (1 mark)

Answer: A — £450

594 ÷ 1.32 = £450.

Q6 (1 mark)

Answer: A — 8 m

4 × 200 = 800cm = 8m.

Q7 (1 mark)

Answer: A — £35.27

210/42 = 5 gal × 4.55 = 22.75L × £1.55 ≈ £35.27.

Q8 (1 mark)

Answer: A — 108 km/h

× 3.6 = 108.

Q9 (1 mark)

Answer: A — 2.7 g/cm³

540 ÷ 200 = 2.7.

Q10 (1 mark)

Answer: A — 5cm × 3cm

500cm/100 = 5cm; 300/100 = 3cm.

Q11 (1 mark)

Answer: A — 20 m/s

÷ 3.6 = 20.

Q12 (1 mark)
Answer: A — 240 min
600 / 2.5 = 240.

Q13 (1 mark)
Answer: A — £700
826 ÷ 1.18 = £700.

Q14 (1 mark)
Answer: A — 54,000
450 × 120 = 54,000.

Q15 (1 mark)
Answer: A — 5.6 cm
14 / 2.5 = 5.6.

Q16 (1 mark)
Answer: A — 750ml (0.34p/ml)
750: 2.55/750 = 0.34p/ml; 500: 1.80/500 = 0.36p/ml.

Q17 (1 mark)
Answer: A — 75 mph
125 ÷ (5/3) = 75 mph.

Q18 (1 mark)
Answer: A — 630
84 × 7.5 = 630.

Q19 (1 mark)
Answer: A — £600
912 ÷ 1.52 = £600.

Q20 (1 mark)
Answer: A — 22.68 L
315 / 100 × 7.2 = 22.68.

10. Real-World Multi-Step Problems

Q1 (1 mark)
Answer: A — £535.75
Standing: 91 × 25p = £22.75. Use: 3800 × 13.5p = £513. Total £535.75.

Q2 (1 mark)
Answer: A — 4 (round up from 3.21)
45 ÷ 14 = 3.21 → 4 litres.

Q3 (1 mark)
Answer: A — £188
5 × 28 + 320 × 0.15 = 140 + 48 = £188.

Q4 (1 mark)
Answer: A — 96
Floor 360 × 240 cm. Tiles 30 × 30. 12 × 8 = 96.

Q5 (1 mark)

Answer: A — £28,114

Taxable £19,430. Tax £3,886. Take-home £28,114.

Q6 (1 mark)

Answer: A — 9

8 panels + 1 = 9 posts (post per gap plus one end).

Q7 (1 mark)

Answer: A — £640

3 × 12.50 × 8 + 340 = 300 + 340 = £640.

Q8 (1 mark)

Answer: A — 65 miles

0.75 × 60 + 0.5 × 40 = 45 + 20 = 65.

Q9 (1 mark)

Answer: A — 500g, 375g, 5 eggs

Scale × 2.5: 500g, 375g, 5 eggs.

Q10 (1 mark)

Answer: A — No (£427.33)

17.1 m² × 24.99 = £427.33 — over budget.

Q11 (1 mark)

Answer: A — £2.32

12 × 16p + 5 × 8p = 192 + 40 = 232p = £2.32.

Q12 (1 mark)

Answer: A — £1,243

Flights £378. Hotel €995 ÷ 1.15 = £865. Total £1,243.

Q13 (1 mark)

Answer: A — £308,475

1,028.25 × 300 = £308,475.

Q14 (1 mark)

Answer: A — 208

500 ÷ 2.4 = 208.3 → 208 boxes.

Q15 (1 mark)

Answer: A — £9.80

£3.50 + 3.5 × £1.80 = £3.50 + £6.30 = £9.80.

Q16 (1 mark)

Answer: A — 2 rolls

Strip 2.4m tall: 4 strips per 10m roll. Wall needs 4 ÷ 0.52 = 7.7 → 8 strips → 2 rolls.

Q17 (1 mark)

Answer: A — £118.25

£1,892 × 0.75 = £1,419 ÷ 12 = £118.25.

Q18 (1 mark)

Answer: A — £4,356

£3,630 + 20% = £4,356.

Q19 (1 mark)

Answer: A — 9-pack (36p each)

9-pack 36p/each cheapest.

Q20 (1 mark)

Answer: A — Pack B cheapest

Compare per-unit prices — Pack B works out cheapest in this scenario.