

Sample Workbook

Free practice from Year 1 to A-level

Eight carefully selected sample sets spanning primary, Key Stage 3, GCSE and A-level, with complete checked answers.

WHAT'S INSIDE

- 64 carefully checked questions
- Clear instructions and generous writing space
- Complete answer key for parents and teachers
- Designed for A4 print and comfortable screen viewing

A4 | Print at 100% or actual size | Answers included

Teachers may print and photocopy these for classroom use.

Years 1-2 sample

Short questions; use drawings or counters if helpful.

1 $8 + 7 =$

2 $17 - 9 =$

3 Double 6 =

4 Half of 18 =

5 $4 + \underline{\quad} = 10$

6 10 more than 34 =

7 Which is greater: 59 or 95?

8 How many sides has a pentagon?

Years 3-4 sample

Show written methods where useful.

1 $347 + 286 =$

2 $702 - 358 =$

3 $7 \times 8 =$

4 $96 \div 12 =$

5 $\frac{1}{4}$ of 52 =

6 Round 367 to nearest 10.

7 Perimeter of 8 cm by 3 cm rectangle.

8 $\pounds 5.00 - \pounds 2.35 =$

Years 5-6 sample

Include units and simplify fractions.

1 $236 \times 14 =$

2 $1728 \div 8 =$

3 $\frac{3}{8} + \frac{2}{8} =$

4 $2.75 + 1.6 =$

5 25% of 360 =

6 Solve $4x + 3 = 27$.

7 Area of triangle base 12 cm, height 7 cm.

8 Mean of 5, 7, 9, 11, 13.

Key Stage 3 sample

Write each method clearly.

1 Simplify $3a + 5a - 2a$.

2 Solve $5x - 4 = 31$.

3 Expand $4(x+3)$.

4 Simplify $18/30$.

5 Share 72 in ratio 5:3.

6 Third angle: 48 and 67 degrees.

7 Hypotenuse with legs 6 and 8 cm.

8 Mean of 12, 17, 19, 20.

GCSE Foundation sample

Check rounding and units.

1 Find 35% of £240.

2 A £72 price is after a 20% discount. Find the original.

3 Share 84 in the ratio 3:4.

4 Work out $\frac{3}{4} + \frac{2}{3}$.

5 Write 0.00056 in standard form.

6 Simplify $a^3 \times a^5$.

7 Solve $5x - 7 = 28$.

8 Expand $4(2x - 3)$.

GCSE Higher sample

Show algebraic steps.

1 Solve $x^2 - 7x + 12 = 0$.

2 Write $x^2 + 6x + 1$ in completed-square form.

3 Find term 20 of 5, 8, 11, ...

4 Interior angle of a regular octagon.

5 Legs are 9 cm and 12 cm. Find the hypotenuse.

6 $\sin 30^\circ = x/14$. Find x .

7 Area of radius 5 cm, in terms of π .

8 Circumference of diameter 12 cm, in terms of π .

A-level Pure sample

Give exact values where appropriate.

1 Differentiate $5x^4 - 3x^2 + 7$.

2 Find the stationary x-values of $y=x^3-12x$.

3 Find the indefinite integral of $6x^2 - 4x$.

4 Evaluate integral of $4x$ from 1 to 3.

5 Differentiate $(3x+1)^5$.

6 Differentiate $x^2 e^x$.

7 Solve $\sin x = 1/2$ for $0 \leq x \leq 360$ degrees.

8 Solve $\log_2(x)=7$.

A-level Applied sample

State units where needed.

1 $u=4$, $a=2$, $t=6$. Find displacement.

2 Mass 8 kg accelerates at 2.5 m/s^2 . Force?

3 Mass 5 kg moves at 7 m/s . Momentum?

4 Vertical velocity starts 19.6 m/s . Time to highest point, $g=9.8$.

5 Find mean of 11, 14, 14, 16, 20.

6 For data 2,4,6, find population variance.

7 $X \sim B(20, 0.3)$. Find $E(X)$.

8 $X \sim N(50, 9)$. Give mean and standard deviation.

Answer key

Years 1-2 sample

1 **15**

2 **8**

3 **12**

4 **9**

5 **6**

6 **44**

7 **95**

8 **5**

Answer key

Years 3-4 sample

1 633

2 344

3 56

4 8

5 13

6 370

7 22 cm

8 £2.65

Answer key

Years 5-6 sample

1 3304

2 216

3 $\frac{5}{8}$

4 4.35

5 90

6 6

7 42 cm²

8 9

Answer key

Key Stage 3 sample

1 6a

2 7

3 $4x+12$

4 $\frac{3}{5}$

5 45 and 27

6 65 degrees

7 10 cm

8 17

Answer key

GCSE Foundation sample

1 £84

2 £90

3 36 and 48

4 $\frac{17}{12}$ or $1\frac{5}{12}$

5 5.6×10^{-4}

6 a^8

7 $x = 7$

8 $8x - 12$

Answer key

GCSE Higher sample

1 **$x = 3$ or $x = 4$**

2 **$(x + 3)^2 - 8$**

3 **62**

4 **135 degrees**

5 **15 cm**

6 **7**

7 **$25\pi \text{ cm}^2$**

8 **$12\pi \text{ cm}$**

Answer key

A-level Pure sample

1 **$20x^3 - 6x$**

2 **$x = -2 \text{ or } 2$**

3 **$2x^3 - 2x^2 + C$**

4 **16**

5 **$15(3x+1)^4$**

6 **$e^x(x^2+2x)$**

7 **$x=30 \text{ or } 150 \text{ degrees}$**

8 **$x=128$**

Answer key

A-level Applied sample

1 60 m

2 20 N

3 35 kg m/s

4 2 s

5 15

6 8/3

7 6

8 50 and 3