HB1.1

1) Find the lowest common multiple of 8 and 14

2) Find the nth term of the sequence 5, 12, 19, 26, …

3) Work out $8 - 4 \times 2$

4) Work out 7.3×29

5) Work out $20520 \div 60$

HB1.2

1) Work out $4\frac{2}{5} - \frac{5}{7}$

2) Find 45% of £280

3) Expand and simplify $3(3x + 5) - 2(4x + 5)$

4) Solve $2(2x + 3) = 5$

5) Work out the value of $7 - 4e$ when $e = -2$

HB1.3

1) Find the highest common factor of 70 and 245

2) Find the 50^{th} term of 23, 29, 35, 41, …

3) Work out $20 - 4 \times 3 + 2$

4) Work out 73×2.8

5) Work out 5138 ÷ 14

HB1.4

1) Work out $4\frac{2}{5} + 3\frac{3}{4}$

2) Find 45% of £280

3) Expand and simplify $5(2x + 4) - 3(4x + 6)$

4) Solve $6x + 4 = 2$

5) Work out the value of $100 - 4a^2$ when $a = 3$

HB1.5

1) Find the lowest common multiple of 70 and 55

2) Find the 50^{th} term of 29, 36, 43, 50, …

3) Work out $5 + 2 \times 3^2$

4) Work out 4.6×27

5) Work out 5616 ÷ 24

HB1.6

1) Work out $5\frac{2}{5} - 2\frac{3}{4}$

2) Find 90% of £280

3) Expand and simplify $3(5x - 2) + 4(3 - 5x)$

4) Solve $2(5x + 3) = -13$

5) Work out the value of $20 + 3a^2$ when $a = -3$

HB2.1

1) Expand and simplify $(x-5)(x+2)$

2) Factorise fully $18x^3 - 12x$

3) What is the 20th term of 14, 17, 20, 23, … ?

4) Divide £450 in the ratio 4 : 5

5) Work out $2.8 \div 0.4$

HB2.2

1) Decrease £8620 by 15%

2) Work out $3\frac{1}{3} \div \frac{2}{5}$

3) Work out the value of $3x^2 + y$ when $x = 4$ and $y = -8$

4) The mean of 12, 17, x , 20, 14 is 12. Find x

5) Solve $\frac{x}{3} + 4 = x + 6$

HB2.3

1) Expand $6x(4x - 2)$

2) Factorise fully $24x^2 - 32x^3$

3) What is the 20th term of 5, 14, 23, 32, … ?

4) Divide 360ml in the ratio 2 : 3 : 4

5) Work out $36 \div 0.9$

HB2.4

1) Increase £720 by 15%

2) Work out $3\frac{1}{3} \times 1\frac{2}{3}$

3) Work out the value of $5x - 2y^2$ when $x = -4$ and $y = 3$

4) Find the median of 23, 12, 14, 32, 20, 27

5) Solve $\frac{2x}{3} + 7 = x - 10$

HB2.5

1) Expand and simplify $(x + 3)^2$

2) Factorise fully $20x^3 - 14x$

3) What is the 30th term of -6, -1, 4, 9, … ?

4) Divide 640kg in the ratio 3 : 5

5) Work out $34.26 \div 0.3$

HB2.6

1) Decrease £820 by 85%

2) Work out $3\frac{1}{3} \div 1\frac{2}{3}$

3) Work out the value of $7 + xy$ when $x = 5$ and $y = -4$

4) The mean of 8, x, 12, 9, x and 7 is 13. Find the value of x

5) Solve $\frac{x}{5} + 2 = x + 4$

HB3.1

1) Solve $\frac{5x-3}{4} = x - 4$

2) Expand and simplify $5(2a + 3b) - 2(3a - 4b)$

3) Work out $2\frac{3}{4} \times 1\frac{2}{3}$

4) Work out $350 \div 0.7$

5) Work out $5 + 2 \times 3^2 - 2$

HB3.2

1) Complete 6 cm² = ……. mm²

2) Evaluate $2^3 \times 3^4$

3) Express 216 as a product of prime factors and hence show it is a cube number

4) Make x the subject of $y = \frac{x}{a} - b^2$

5) Calculate the area of a circle with radius 6 cm. Leave your answer in terms of π

HB3.3

1) Solve $\frac{5x+2}{3} = x - 7$

2) Expand and simplify $3(4a - b) + 5(2a - 3b)$

3) Work out $2\frac{3}{4} - 1\frac{2}{3}$

4) Work out $8.31 \div 0.3$

5) Work out $5 - (3 + 2)^2 \times 4$

HB3.4

1) Complete 600 cm² = ……. m²

2) Evaluate $5^3 \times 2^2$

3) Express 729 as a product of prime factors and hence show it is a cube number

4) Make x the subject of $y = \frac{b}{x} - a$

5) Calculate the area of a semi-circle with radius 8 cm. Leave your answer in terms of π

HB3.5

1) Solve $\frac{x}{3} - 5 = 2x + 5$

2) Expand and simplify $3(4a - b) - 5(a - 2b)$

3) Work out $5\frac{3}{7} + 6\frac{2}{3}$

4) Work out $7.92 \div 0.9$

5) Work out $8 + (2 \times 5^2)^2$

HB3.6

1) Complete 200 cm² = ……. mm²

2) Evaluate $5^2 \times 2^5$

3) Express 729 as a product of prime factors and hence show it is a square number

4) Make x the subject of $y = a - \sqrt{x}$

5) Calculate the area of a semi-circle with diameter 8 cm. Leave your answer in terms of π

HB4.1

1) Increase \$560 by 15%

2) Round 0.0362 to one significant figure

3) Factorise $x^2 + x - 12$

4) Divide £747 in the ratio 7 : 2

5) Work out 15840 ÷ 45

HB4.2

1) If $x = -3$ find the value of $2x^2 + 10$

2) By rounding each number to one significant figure, estimate $\frac{623 \times 27.4}{91.3}$

3) Find the nth term of the sequence 58, 64, 70, 76, …

4) Express 84 as a product of prime factors

5) Expand $(x + 4)(x - 2)$

HB4.3

1) Decrease £340 by 15%

2) Round 0.00546 to one significant figure

3) Factorise $x^2 - 8x + 15$

4) Divide £245 in the ratio 5 : 2

5) Work out 23446 ÷ 19

HB4.4

1) If $x = 3$ find the value of $2x^2 - 16$

2) By rounding each number to one significant figure, estimate $18.32 \div 0.231^2$

3) Find the nth term of the sequence 0, 7, 14, 21, …

4) Express 250 as a product of prime factors

5) Expand $(x - 6)(x - 3)$

HB4.5

1) Decrease £340 by 85%

2) Round 382 to one significant figure

3) Factorise $x^2 - 36$

4) Divide £245 in the ratio 3 : 2

5) Work out 90741 ÷ 21

HB4.6

1) If $x = 6$ find the value of $0.5x^2$

2) By rounding each number to one significant figure, estimate $\frac{427}{2.138 \times 3.614}$

3) Find the nth term of the sequence 3, 9, 15, 21, …

4) Express 60 as a product of prime factors

5) Expand $(x + 8)(x - 2)$

HB5.1

1) A price is increased from £400 to £430.
Calculate the percentage increase.

2) Simplify $\sqrt{6} \times \sqrt{15}$

3) Expand and simplify $(x - 4)(x - 6)$

4) Work out $\frac{4}{7} \div \frac{2}{5}$

5) Make x the subject of $y = ax^2 + b$

HB5.2

1) Solve $5x - 6 > x + 14$

2) Work out $8 - 2 \times 3 + 1$

3) Simplify $(4xy^3)^3$

4) Work out 83×27

5) Express 0.0304 in standard form

HB5.3

1) A price is decreased from £250 to £215.
Calculate the percentage decrease.

2) Simplify $\sqrt{7} \times \sqrt{14}$

3) Expand and simplify $(x + 3)^2$

4) Work out $\frac{4}{7} \times \frac{2}{5}$

5) Make x the subject of $y = (ax)^2 + b$

HB5.4

1) Solve $2x + 7 \geq 4x - 5$

2) Work out $5 - 4 + 3 \times 2 \div 1$

3) Simplify $(5x^2y^3)^2$

4) Work out 81×27

5) Express 60700 in standard form

HB5.5

1) A price is increased from £120 to £138.
Calculate the percentage increase.

2) Simplify $\sqrt{2} \times \sqrt{40}$

3) Expand and simplify $(x - 5)^2$

4) Work out $\frac{5}{6} \div \frac{1}{3}$

5) Make x the subject of $y = \sqrt{ax + b}$

HB5.6

1) Solve $5x + 8 \leq 2 + 3x$

2) Work out $1 + 2 - 3 \times 4$

3) Simplify $3a^3 \times 2b^2 \times 2a^4 \div b$

4) Work out 24×366

5) Express 0.000401 in standard form

HB6.1

1) Expand and simplify $(3x - 2)(2x - 4)$

2) Simplify $4\sqrt{5} + 2\sqrt{5}$

3) Find the gradient of the line $2y + 3x = -1$

4) Work out the value of $3x^2 + 2x$ when $x = 4$

5) Find the 100th term of 7, 2, -3, -8, …

HB6.2

1) Solve, by factorising, $x^2 - 4x - 21 = 0$

2) Evaluate $16^{\frac{1}{2}}$ (i.e 16 to the power of a half)

3) Solve, and show on a number line, $7x - 4 \geq 5x + 3$

4) Work out $3.4 \times 10^4 + 2.7 \times 10^3$

5) Find the gradient of the line joining points $(3\ ,\ 2\ )$ and (5 , 10)

HB6.3

1) Expand and simplify $(5x + 3)(3x - 2)$

2) Simplify $7\sqrt{5} - \sqrt{5}$

3) Find the gradient of the line $2x + y = 7$

4) Work out the value of $4x^2 - 3x$ when $x = -3$

5) Find the 100th term of 8, 3, -2, -7, …

HB6.4

1) Solve, by factorising, $x^2 + 8x + 12 = 0$

2) Evaluate 9^{-2}

3) Solve, and show on a number line, $2x - 3 \geq 4x + 5$

4) Work out $4.3 \times 10^6 + 2.5 \times 10^4$

5) Find the gradient of the line joining points $(-2\ ,\ 1\ )$ and (1 , 13)

HB6.5

1) Expand and simplify $(4x - 5)(3x - 7)$

2) Simplify $7\sqrt{5} - 6\sqrt{5}$

3) Find the gradient of the line $3x + 2y = 12$

4) Work out the value of $2x^3$ when $x = -2$

5) Find the 100th term of 3.5, 5, 6.5, 8, 9.5, …

HB6.6

1) Solve, by factorising, $x^2 + 2x - 24 = 0$

2) Evaluate $9^{-\frac{1}{2}}$ (i.e. 9 to the power of $-\frac{1}{2}$)

3) Solve, and show on a number line, $7x + 8 \leq 4 - 3x$

4) Work out $6.8 \times 10^5 - 3.1 \times 10^4$

5) Find the gradient of the line joining points $(2\ ,\ 1\ )$ and (0 , 13)