HA1.1

1) Express 63 as a product of prime factors

2) Find the 50^{th} term of the sequence 6, 10, 14, 18, …

3) Work out $10 - 8 + 3 \times 2$

4) Work out $448.5 \div 1.3$

5) Work out 73.6×0.58

HA1.2

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

2) Increase £330 by 20%

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

4) Solve $2x - 6 = 5x + 9$

5) Work out the value of $5 - 3d$ when $d = -5$

HA2.1

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

2) Factorise fully $8x + 20x^3$

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

4) Work out $33 \div 0.3$

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

HA2.2

1) Make x the subject of $y = ax^2 - 4$

2) Divide 400kg in the ratio 3 : 5

3) Work out the value of $3x^2 + y$ when $x = -2$ and $y = 6$

4) The mean of 7, 12, 3, x, 11 is 9. Find x

5) Solve $\frac{x}{2} + 6 = 3x - 14$

HA3.1

1) Solve the inequality $4x - 6 \leq 2x + 3$

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

3) Work out $5\frac{2}{7} - 1\frac{3}{4}$

4) Work out 3.6 × 4.6

5) Work out 2802 ÷ 0.6

HA3.2

1) Simplify $\sqrt{75} + 3\sqrt{12}$

2) Simplify $(2xy^2)^3$

3) Complete 4.5cm² = …….mm²

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

5) Calculate the area of a semi-circle with diameter 12cm. Leave your answer in terms of π

HA4.1

1) Factorise and solve $x^2 - x - 12 = 0$

2) Express in completed square form $x^2 - 10x + 12$

3) Simplify $\frac{3x}{4} - \frac{x}{5}$

4) Expand and simplify $\sqrt{7}(2\sqrt{7} - 5)$

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

HA4.2

1) Simplify $\frac{(3x^2y)^2}{xy}$

2) Express 1764 as a product of primes and hence find its square root

3) A price is increased from £300 to £345. Calculate the percentage change

4) Estimate $\frac{9.6^2-38}{2\cdot73416}$

5) Express 0.03008 in standard form

HA5.1

1) Solve, by completing the square
$x^2 - 8x + 7 = 0$

2) Simplify $\frac{x^2-9x+20}{x-4}$

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

4) Solve $-3 < 2x + 7 \leq 15$

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

HA5.2

1) Work out $5.64 \div 0.3$

2) Find the gradient of the line joining $(1,4)$ and $(5,16)$

3) Make x the subject of $4x + a = 9 - x$

4) Evaluate 9^{-2} and $9^{\frac{1}{2}}$

5) Solve simultaneously $3x + 2y = 19$ and $5x - 2y = 21$

HA6.1

1) Solve using the quadratic formula (and a calculator)
$3x^2 - 4x - 2 = 0$

2) Work out $3.1 \times 10^3 + 2.8 \times 10^2$

3) Find the equation of the line perpendicular to $y = 2x + 10$ passing through the point $(6,2)$

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

5) Find the highest common factor of 60 and 84

HA6.2

1) Solve simultaneously:
$2x - y = 10$ and $5x - 3y = 27$

2) Simplify $\sqrt{45} - \sqrt{20}$

3) 7.5m² = ? cm²

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

5) Solve by factorising $9x^2 + 18x + 8 = 0$