## HA1.3

Express 64 as a product of prime factors
And hence show that it is both a square and cube number



2) Find the 50<sup>th</sup> term of the sequence 1, 8, 15, 22, ...

3) Work out  $10 \times (3 + 4^2)$ 

4) Work out  $41.54 \div 3.1$ 

5) Work out  $0.26 \times 0.71$ 

HA1.4

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



2) Decrease £560 by 20%

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

4) Solve 6x + 3 = 7 - 4x

5) Work out the value of  $3c^2$  when c = 2

## HA2.3

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



2) Factorise fully  $8x^3 + 12x^2$ 

3) Factorise  $x^2 - 9x + 20$ 

4) Work out  $64 \div 0.5$ 

5) Work out 
$$1\frac{1}{3} \div 2\frac{1}{6}$$

HA2.4

1) Make *x* the subject of  $y = \sqrt{ax - 4}$ 



2) Divide 450kg in the ratio 2 : 7

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

4) The median of 7, 25, *x*, 7, 8 and 28 is 10. Find *x* 

5) Solve 
$$\frac{3x+7}{2} = 2x + 14$$

HA3.3

1) Solve the inequality 3x - 5 > 5x + 7



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

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

4) Work out 0.28 × 3.9

5) Work out 47.67 ÷ 0.7

HA3.4

1) Simplify  $2\sqrt{75} + \sqrt{8} + \sqrt{27} - 3\sqrt{12}$ 



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

3) Complete  $65 \text{ cm}^2 = \dots \text{ m}^2$ 

4) Make x the subject of 9 + ax = 3x - b

5) Calculate the area of a semi-circle with diameter 5cm. Leave your answer in terms of  $\pi$ 

HA4.3

1) Factorise and solve  $x^2 - 9x + 20 = 0$ 



2) Express in completed square form  $x^2 + 14x + 100$ 

3) Simplify 
$$\frac{5}{2x} - \frac{8}{3x}$$

4) Expand and simplify  $2\sqrt{3}(3+5\sqrt{3})$ 

5) Find the gradient of the line 4 - 2y = 3x

HA4.4

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



2) Express 216 as a product of primes and hence find its cube root

3) A price is reduced from £400 to £344. Calculate the percentage change

4) Estimate  $\frac{8.107 \times 4.83}{0.002138}$ 

5) Express 430812.03 in standard form to 3 significant figures

HA5.3

1) Solve, by completing the square  $x^2 + 10x + 24 = 0$ 



2) Simplify 
$$\frac{x^2-16}{x+4}$$

3) Work out 
$$6\frac{1}{3} - 3\frac{3}{7}$$

4) Solve  $-13 < 4x - 5 \le -1$  and display the solution on a number line

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

HA5.4

1) Work out  $74.1 \div 0.03$ 



2) Find the gradient of the line joining (11,4) and (2,5)

3) Make x the subject of ax + b = 9 - 3x

4) Evaluate  $16^{-\frac{1}{2}}$ 

5) Solve simultaneously 3x + 4y = 14 and 4x - y = 25

HA6.3

1) Solve using the quadratic formula (and a calculator)  $4x^2 + 5x - 3 = 0$ 



2) Work out  $1.3 \times 10^3 \times 1.3 \times 10^2$ 

3) Find the equation of the line perpendicular to  $y = -\frac{1}{2}x + 7$ passing through the point (5,2)

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

5) Find the lowest common multiple of 60 and 84

HA6.4

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



2) Simplify  $\sqrt{5} \times \sqrt{60}$ 

3) ?  $m^2 = 500 \text{ cm}^2$ 

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

5) Solve by factorising  $6x^2 + 17x + 5 = 0$