1) Simplify $\sqrt{98}$



2) A car bought for £23,500 depreciates in value by 7.5% per annum. Write a formula for the value of the car V, after t years

3) Use the formula $s=\frac{1}{2}(u+v)t$ to find how long it took to travel 45m if the initial velocity was 8m/s and the final velocity was 10m/s

4) Evaluate $9^{\frac{5}{2}}$ (i.e 9 to the power of $\frac{5}{2}$)

5) A block has a volume of 4 m³ and a mass of 32kg. Calculate the density.

1) Find the nth term of the quadratic sequence 6, 22, 48, 84, ...



2) Sketch the curve $y = x^3$

3) Find the equation of the line with gradient $-\frac{1}{2}$ passing through the point (3,5)

4) Work out $3.5 \times 10^4 + 5 \times 10^3$

5) Express $x^2 - 12x - 30$ in completed square form

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



2) Find the coordinates of the vertex of the graph

$$y = x^2 - 6x + 10$$

3) Use the formula $v^2 = u^2 + 2as$ to find the initial velocity, if, after 7m, the final velocity was 9m/s, the acceleration was 4m/s²

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

5) What is the exact value of cos 60°

1) A force of 420N acts over an area of 60 m². What is the pressure?



2) If $f(x) = 3x - 2x^2$, find the value of f(3)

3) If the nth term of a sequence is $\frac{4-2n}{n^2}$, write down the first three terms

4) Work out $6 \times 10^5 \times 6 \times 10^8$, giving your answer in standard form

5) Solve simultaneously 2x - 3y = 10 and 8x + y = 1

1) Simplify $2\sqrt{45} \times 3\sqrt{20}$



2) Find the nth term of $\frac{7}{1}$, $\frac{5}{8}$, $\frac{3}{27}$, $\frac{1}{64}$

3) Solve $tan(x) = \sqrt{3}$ for $0^{\circ} \le x < 360^{\circ}$

4) Find the inverse function of $f(x) = 4 - \frac{x}{3}$

5) Find the next term in the sequence $\frac{4}{3}$, 4, 12, 36, , ...



1) Find the equation of the line passing through (4,7) and (1,13)

Solve using the quadratic formula (and a calculator), $3.2x^2 - 2.8x - 7.3 = 0$

3) Factorise $6x^2 - x - 15$

4) Simplify $\frac{3x+2}{3} - \frac{4-3x}{5}$

5) Write down the first three terms of the sequence defined by: $x_1=2$, $x_{n+1}=2x_n+1$

1) Expand $(x + 3)(x - 2)^2$

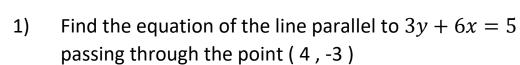


2) a is directly proportional to b. When a=5, b=10. Find the value of b when a=7

3) Simplify
$$\frac{x^2-25}{x+5}$$

4) If
$$f(x) = 3 - 2x^2$$
, find the value of $f(-5)$

5) Find the coordinates of the vertex of the graph $y = x^2 - 6x + 12$





2) Simplify
$$\frac{2x-5}{3} - \frac{2x-4}{6}$$

3) Sketch the graph of $y = x^3$

4) A pressure of 24 N/m² results from a force of 12 N acting over an area x m². Find x

5) Rationalise the denominator

$$\frac{6\sqrt{7}}{\sqrt{7}-1}$$

1) Solve simultaneously 3x + 4y = 14 and x + 6y = 7



2) One solution of $\sin x = -0.342020$... is $x = 200^\circ$ What is the other solution in the range $0^\circ \le x < 360^\circ$?

3) Find the 100th term of the sequences 46, 52, 58, 64, ...

4) Find fg(x) where f(x) = 3x + 8 and $g(x) = x^2 - 6$

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



1) Shape B is an enlargement of shape A with scale factor 3. If the area of shape A is 36cm², what is the area of shape B?

2) Work out $(3.2 \times 10^9) \div (4 \times 10^4)$, giving your answer in standard form

3) Solve using the quadratic formula (and a calculator) $1.2x^2 + 3.4x = 0$

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

5) The value of x is given as 400 rounded to **2** significant figures. State the upper and lower bounds

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



2) If
$$f(x) = \frac{4-2x}{5}$$
 find $f^{-1}(x)$

3) Find the equation of the line **parallel** to 2y = 3x + 8 passing through the point (6, 1)

4) Find the nth term of the sequence 19, 16, 11, 4, -5, ...

5) A car travels 40 km in 25 minutes, what is its average speed in km/h?

t is given as 0.65 correct to two significant figures.Write an inequality to show the range of values t could be



2) Shape B is an enlargement of shape A with scale factor 5. If the volume of shape A is 2cm³, what is the volume of shape B?

3) Solve, by factorising, $6x^2 + 17x + 12 = 0$

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

5) Sketch the graph of $y = -x^2$ and $y = -x^3$