

National 5 Homework

Mixed Homework

Exercise 5

1. Find the equation of the line passing through the points A(4,-3) and B(2,1).
2. Change the subject of the formula below to p .

$$C = \frac{4p^2 + 3q}{5}$$

3. A function has equation $f(x) = 6x + 5$. If $f(a) = 23$, find the value of a .
4. The diameter of Jupiter is 139,822 km. Assuming the planet is a perfect sphere, calculate its volume, giving your answer in scientific notation.
Round your final answer correct to 3 significant figures.

5. A function has equation $f(x) = 2x^{-3}$. Evaluate $f(2)$, leaving your answer in its simplest form.

6. Solve the inequality $9 - 4(2t + 3) > 5 - 4t$

7. Rationalise the denominator and simplify

$$\frac{4}{\sqrt{8}}$$

8. A straight line has equation $4x + 3y = 12$.

Find the gradient of this line

[SQA Paper 1; 2 Marks]

9. Express as a single fraction in its simplest form

$$\frac{7}{x+5} - \frac{3}{x}$$

[SQA Paper 2; 3 Marks]

10. A function has equation $f(x) = 5\sqrt{x}$.
Evaluate $f(20)$, leaving your answer in its simplest form.

11. The temperature of a liquid is 65°C . It is left to cool at the rate of 6% per hour for 3 hours.

Calculate its temperature after this time.

12. Factorise $2x^2 - 9x - 18$.

13. Simplify

$$\frac{4m^4 \times 6m}{3m^3}$$

14. Solve the equation

$$\frac{7x}{4} - \frac{2}{3} = 2x$$

15. 54,000 spectators attended a football match. If this represented 70% of the full capacity, work out the attendance at the stadium for a sell out match.