

Algebra – GCSE Mathematics1. **No.8**Solve $7x - 22 = 4x + 29$ **[3 marks]**

 $x =$ _____

[4 marks]

This image shows a blank sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins or other markings visible.

Answer _____

3. No.19

 A , B and C are numbers.Here is some information about B and C .

B	$\frac{7}{4}$ of A
C	A increased by 150%

Work out C as a fraction of B .

[4 marks]

Answer _____

4. No.20

$$5x^3 + ax^2 + bx + c \equiv kx^3 + (2 - k)x^2 + (a^2 - 1)x + \frac{b}{2}$$

Work out the values of a , b and c .

[3 marks]

$a =$ _____ $b =$ _____ $c =$ _____

5. No.22

$$x_{n+1} = 5 - \frac{1}{x_n}$$

Use $x_1 = 1$ to work out an approximate solution to $x = 5 - \frac{1}{x}$

Give your answer to 4 significant figures.

[3 marks]

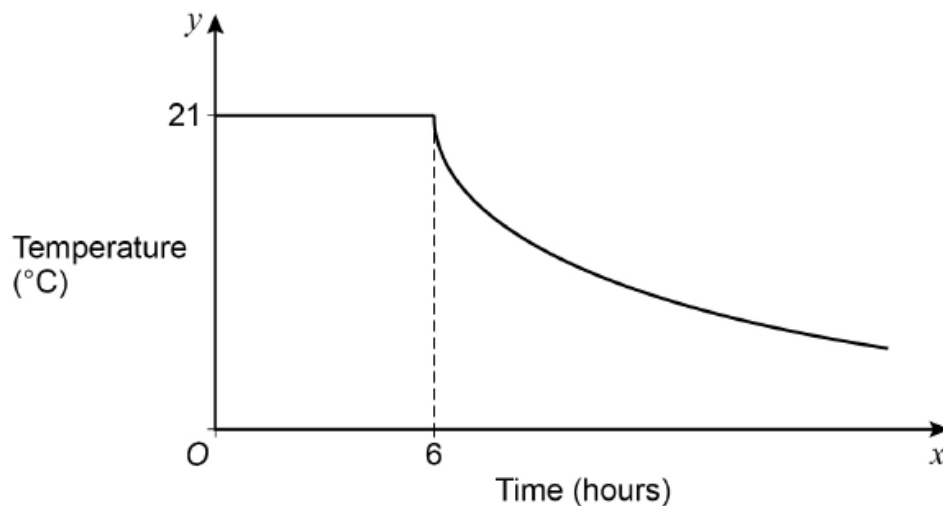
$x =$ _____

6. No.24

A room is kept at a constant temperature of 21°C for 6 hours.

The heating is then turned off and the room begins to cool.

Here is a sketch graph showing the temperature, $y^{\circ}\text{C}$, of the room at time x hours.



- (a) Assume the equation of the curved part is $y = \frac{k}{x}$ where k is a constant.

Work out the value of y when $x = 12$

[2 marks]

$y =$ _____

(b) In fact,

the equation of the curved part is $y = A \times \left(\frac{1}{3}\right)^{\frac{1}{6}x}$ where A is a **different** constant.

How does this affect the value of y when $x = 12$?

Tick **one** box.

You **must** show working to support your answer.

[2 marks]

☐

The value of y is greater than the answer to part (a).

☐

The value of y is less than the answer to part (a).

☐

The value of y is the same as the answer to part (a).

7. No.17

(a) a and b are different prime numbers.

$$a^3 \times b^2 = 200$$

Work out the value of $a^4 \times b$

[3 marks]

Answer _____

(b) c and d are different prime numbers.Circle the equation for which $c^4 \times d^2 \times e$ is a cube number.

[1 mark]

$$e = cd$$

$$e = c^2d$$

$$e = c^2d^2$$

$$e = c^3d^3$$

8. No.19

$$f(x) = x - 3 \quad g(x) = 4x - 7$$

(a) Work out the value of $fg(6)$ **[2 marks]**

Answer _____

(b) Solve $(f(x))^2 = g(x)$ **[4 marks]**

Answer _____