

MATHEMATICS SHORT COURSE

Self Assessment Quiz – Answers

Express $\frac{g}{p} \div \frac{u}{f}$ as a single fraction

Answer:

$$\frac{g}{p} \div \frac{u}{f} = \frac{gf}{pu}$$

Express $\frac{f}{t} \times \frac{p}{j}$ as a single fraction

Answer:

$$\frac{f}{t} \times \frac{p}{j} = \frac{fp}{tj}$$

3 Express $\frac{c}{w} \div \frac{j}{z}$ as a single fraction

Answer:

$$\frac{c}{w} \div \frac{j}{z} = \frac{cz}{jw}$$

4 Express

What is the value of $\log_{10} 10^{-7}$?

Answer:

$$\log_{10} 10^{-7} = -7$$

What is the value of $\log_{10} 1000$?

Answer:

$$\log_{10} 1000 = \log_{10} 10^3 = 3$$

Solve for x in the equation $10^x = 100$.

Answer:

$$10^x = 100 \implies x = 2$$

Solve for x in the equation $10^{-x} = 1000$.

Answer:

$$10^{-x} = 1000 \implies -x = 3 \implies x = -3$$

Find the roots of the equation $x^2 - x - 3 = 0$.

Answer:

$$x = \frac{1 \pm \sqrt{13}}{2} \text{ or } x = \frac{1 \mp \sqrt{13}}{2}$$

Find the roots of $x^2 - 4x + 4 = 0$.

Answer:

$$x^2 - 4x + 4 = (x-2)^2 = 0 \implies x = 2$$

Find the roots of $x^2 - 9 = 0$.

Answer:

$$x^2 - 9 = (x-3)(x+3) = 0 \implies x = 3 \text{ or } x = -3$$

3 Find the roots of $x^2 - x - 6 = 0$.

Answer:

$$x^2 - x - 6 = (x-3)(x+2) = 0 \implies x = 3 \text{ or } x = -2$$

1. Find the roots of $x^2 - 1$.

Answer: $x = 1$ or $x = -1$.

2. Simplify the expression $\frac{x^{-8}y^8}{(x^{-3}y^{-6})^{-2}}$.

Answer: $x^{-8}y^8 \cdot x^{-26}y^{-40} = x^{-34}y^{-32}$.

Factorise $x^9y - x^2y$.

Answer: $x^2y(x^7 - 1)$.

If $\frac{1}{y} = x - 2$ find the formula which gives y in terms of x . That is rearrange the formula to get y in terms of x .

Answer: $y = \frac{1}{x - 2}$.

If $\log_{10} x = 2$ what is x ?

Answer: $\log_{10} x = 2 \Rightarrow x = 10^2 = 100$.

If $x^2 = 16$ what is x ?

Answer: $x = 4$ or $x = -4$.

3. Express $x^{-2}y^4$ as a single power of x^2y^4 .

Answer: $x^{-2}y^4 = (x^2y^4)^{-1}$.