

THINGS THAT ARE... **NOT TRUE**

1 $(x + y)^2 = x^2 + y^2$

2 $\sqrt{x + y} = \sqrt{x} + \sqrt{y}$

3 $(3x)^2 = 3x^2$ or $x = 2 \Rightarrow 3x^2 = 36$

4 $\frac{2x + 3}{2} = x + 3$ or $\frac{x^2 + z^3}{x + z} = x + z^2$

5 $a - (b - c) = a - b - c$ or $10 - 3 + 2 = 10 - 5$ or

$\frac{n^2 - 2n + 3}{n^2} = 1 - \frac{2n + 3}{n^2}$

6 $13^0 = 0$ or $36^{\frac{1}{2}} = 18$ or $8^{-1} = -8$

7 $2x^{-1} = \frac{1}{2x}$

8 $3x = 5 \Rightarrow x = \frac{3}{5}$

9 $\frac{x + 5}{3} = 0 \Rightarrow \frac{x}{3} = -5$ or $\frac{6}{x - 2} = 3 \Rightarrow \frac{6}{x} = 3 + 2$

10 $2 \times \frac{3}{5} = \frac{6}{10}$

11 $x \tan x = \tan x^2$ or $\frac{\sin x^2}{x} = \sin x$ or $\cos 8x = 8x \cos$ or

$2 \sin x = 1 \Rightarrow x = \frac{1}{2 \sin}$

$$12 \quad \sin(x + y) = \sin x + \sin y$$

$$13 \quad \cos 4x = 4 \cos x \quad \text{or} \quad \cos(4x) \div 4 = \cos x$$

$$14 \quad 12 \times 2 = 24 - 3 = 21 \quad (\text{or} \quad y = \ln x = \frac{1}{x} \quad \text{or} \quad y = x^3 + 2x = 3x^2 + 2)$$

$$15 \quad (-3)^2 = -9 \quad \text{or} \quad -(x - 1)^6 = (1 - x)^6$$

$$16 \quad \sqrt{7x} = 7\sqrt{x}$$

$$17 \quad 5 \div 5 = 0 \quad \text{or} \quad 14 \times 0 = 14$$

$$18 \quad 8 \div 0 = 0$$

$$19 \quad x + 2 = 0 \Rightarrow x = 2$$

$$20 \quad x^2 = 4 \Rightarrow x = 2 \quad \text{or} \quad x(x + 4) = 12 \Rightarrow x = 12 \text{ or } x + 4 = 12$$

$$21 \quad \frac{2lc}{3c} = 7c \quad \text{or} \quad 5b - 2b = 3 \quad \text{or} \quad 6x + 6x = 12x^2 \quad \text{or}$$

$$x + 3 = 3x$$

$$22 \quad \frac{5}{2+4} = \frac{5}{2} + \frac{5}{4}$$

$$23 \quad \sqrt{x} = x^{-\frac{1}{2}}$$

$$24 \quad \sin^2 x = \sin 2x \quad \text{or} \quad \sin^2 x = \sin(x^2)$$

$$25 \quad \cos 0 = 0 \quad \text{etc.}$$

$$26 \quad \frac{3x}{z} - \frac{x-y}{z} = \frac{2x-y}{z}$$