

## Timester Challenge **Identities**



Identify if it is an equation (=) or an identity  $(\equiv)$  by using the correct symbols.

$$2x + 4 \square 15$$

$$3(x-4) 3x - 12$$

$$x^2 - a^2 \square (x+a)(x-a)$$

$$2(x+3)$$
 24

$$x^2$$
 16

$$5x + 8 \square 2(x+4) + 3x$$

Find a solution for a and b by equating the coefficients.

$$(2x-4)(x+3) + 5 \equiv 2x^2 + ax + b$$



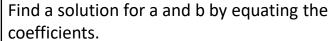


Find a solution for a, b and c by equating the coefficients.

$$2x^2 + 8x - 4 \equiv a(x+b)^2 + c$$







$$\frac{ax^2 + 11x + b}{x + 4} \equiv 2x + 3$$



Find a solution for a and b by equating the coefficients.

$$7(ax + 3) - 2(5x + b) \equiv 4x + 13$$



Find a solution for a and b by equating the coefficients.

$$2(4x + 8) - 3(ax - 5) \equiv 2x + b$$





## Timester Challenge Identities



## **Answers**

Identify if it is an equation (=) or an identity  $(\equiv)$  by using the correct symbols.

$$2x + 4 = 15$$

$$3(x-4) \equiv 3x - 12$$

$$x^2 - a^2 \equiv (x+a)(x-a)$$

$$2(x + 3) = 24$$

$$x^2 = 16$$

$$5x + 8 \equiv 2(x+4) + 3x$$

Find a solution for a and b by equating the coefficients.

$$(2x-4)(x+3) + 5 \equiv 2x^2 + ax + b$$
  
 $2x^2 + 6x - 4x - 12 + 5 \equiv 2x^2 + 2x - 7$   
So  $a = 2$  and  $b = -7$ 





Find a solution for a, b and c by equating the coefficients.

$$2x^{2} + 8x - 4 \equiv a(x+b)^{2} + c$$

$$2(x^{2} + 4x) - 4$$

$$\equiv 2(x+2)^{2} - 8 - 4$$

$$\equiv 2(x+2)^{2} - 12$$
So  $b = 2$  and  $c = -12$ 
Silver

Find a solution for a and b by equating the coefficients.

$$\frac{ax^2 + 11x + b}{x + 4} \equiv 2x + 3$$

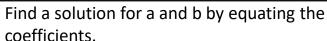
$$\frac{(2x+3)(x+4)}{x+4} \equiv 2x+3$$

$$\frac{2x^2+11x+12}{x+4} \equiv 2x+3$$
So  $a = 2$  and  $b = 12$ 
Silver

Find a solution for a and b by equating the coefficients.

$$7(ax + 3) - 2(5x + b) \equiv 4x + 13$$
  
 $7ax + 21 - 10x - 2b \equiv 4x + 13$   
 $So 7ax - 10x \equiv 4x$   
 $(14x - 10x = 4x)$   
hence  $a = 2$   
 $So 21 - 2b = 13$   
hence  $b = 4$ 

Gold



$$2(4x + 8) - 3(ax - 5) \equiv 2x + b$$

$$8x + 16 - 3ax + 15 \equiv 2x + b$$

$$So 8x - 3ax \equiv 2x$$

$$(8x - 6x = 2x)$$
hence  $a = 2$ 

$$So 16 + 15 \equiv b$$

$$(16 + 15 = 31)$$
hence  $b = 31$ 





