# Timester Challenge
Factorise and Solve Quadratics

Solve:

1) $x^2 + 4x + 3 = 0$

2) $x^2 - 9x + 14 = 0$

3) $x^2 - 4x - 12 = 0$

Bronze ⭐

Find the interval for which $x^2 - 5x + 6 \leq 0$

_____$\leq x <$ _____

Silver ⭐

Find the equation of the graph.
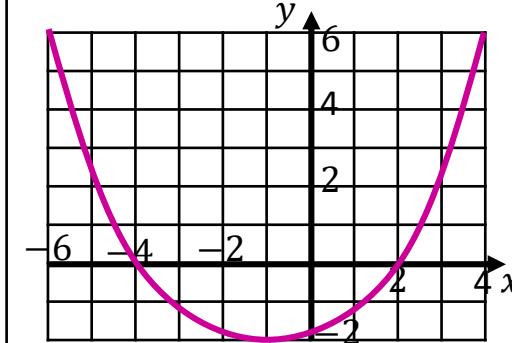
Gold ⭐

Solve:

1) $x^2 + 5x = 24$

2) $x^2 - 11x + 15 = -3$

Bronze ⭐

Circle the equation with the roots -5 and 4.

Circle the correct answer

$x^2 - 20 = 0$ $(x + 5)(x - 4) = 0$

$(x + 4)(x - 5) = 0$ $x^2 - 5x + 4 = 0$

Silver ⭐

$y = 4x^4 + 2x^2$ and $x = \sqrt{z - 1}$. Find the value of z when $y = 9$.

Show your working.

Gold ⭐

Timester Challenge
Factorise and Solve Quadratics
Answers

Solve:

1) $x^2 + 4x + 3 = 0$ $(x + 1)(x + 3) = 0$
   so $x = -1$ and $x = -3$.

2) $x^2 - 9x + 14 = 0$ $(x - 7)(x - 2) = 0$
   so $x = 7$ and $x = 2$.

3) $x^2 - 4x - 12 = 0$ $(x - 6)(x + 2) = 0$
   so $x = 6$ and $x = -2$.

Bronze ⭐

Find the interval for which $x^2 - 5x + 6 \leq 0$

$x^2 - 5x + 6 \leq 0$
$(x - 2)(x - 3) = 0$
so $x = 2$ and $x = 3$.

$2 \leq x < 3$

Silver ⭐

Find the equation of the graph. *Roots are*

$x = -4$ and $x = 2$
So
$(x + 4)(x - 2) = 0$
$x^2 + 2x - 8 = 0$
Hence
$y = x^2 + 2x - 8$
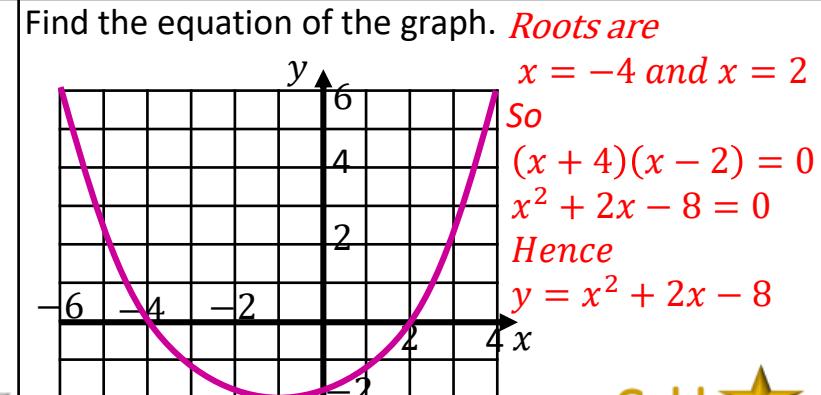
Gold ⭐

Solve:

1) $x^2 + 5x = 24$ $x^2 + 5x - 24 = 0$
   $(x - 3)(x + 8) = 0$
   so $x = 3$ and $x = -8$.

2) $x^2 - 11x + 15 = -3$
   $x^2 - 11x + 18 = 0$
   $(x - 2)(x - 9) = 0$
   so $x = 2$ and $x = 9$.

Bronze ⭐

Circle the equation with the roots -5 and 4.
Circle the correct answer

$x^2 - 20 = 0$ $(x + 5)(x - 4) = 0$

$(x + 4)(x - 5) = 0$ $x^2 - 5x + 4 = 0$

Silver ⭐

$y = 4x^4 + 2x^2$ and $x = \sqrt{z - 1}$. Find the value of z when $y = 9$.
Show your working.

$y = 4\left(\sqrt{z-1}\right)^4 + 2\left(\sqrt{z-1}\right)^2$
$y = 4(z - 1)^2 + 2(z - 1)$
$y = 4(z^2 - 2z + 1) + 2z - 2$
$y = 4z^2 - 8z + 1 + 2z - 2$
$y = 4z^2 - 6z - 1$

$9 = 4z^2 - 6z - 1$
$4z^2 - 6z - 10 = 0$
$(2x - 5)(2x + 2) = 0$
So
$z = \frac{5}{2}$ and $z = -\frac{2}{2} = -1$

Gold ⭐