

Solve:

1.)  $4x^2 + 21x + 5 = 0$

2.)  $2x^2 + 11x + 14 = 0$

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

4.)  $10x^2 + 13x - 3 = 0$

5.)  $3x^2 - 4x + 1 = 0$

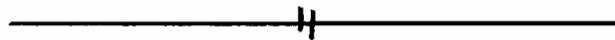
6.)  $3x^2 - x - 2 = 0$

7.)  $5x^2 - 17x + 6 = 0$

8.)  $x^2 - 25 = 0$

9.)  $4x^2 - 9 = 0$

10.)  $25x^2 - 16 = 0$



SOLVING QUADRATIC EQUATIONS BY FACTORISING (2) EXERCISE

1)  $4x^2 + 21x + 5 = 0$

$4 \times 5 = 20$   
 $+ 1 \times 20$

$4x^2 + x + 20x + 5 = 0$

$x(4x+1) + 5(4x+1) = 0$

$(x+5)(4x+1) = 0$

Either  $x + 5 = 0$

$\Rightarrow x = -5$

or  $4x + 1 = 0$

$\Rightarrow 4x = -1$

$\Rightarrow x = -\frac{1}{4}$

Solution  $\begin{cases} x = -5 \\ x = -\frac{1}{4} \end{cases}$

2)  $2x^2 + 11x + 14 = 0$

$2 \times 14 = 28$   
 $+ 4 \times 7$

$2x^2 + 4x + 7x + 14 = 0$

$2x(x+2) + 7(x+2) = 0$

$(2x+7)(x+2) = 0$

Either  $2x + 7 = 0$

$\Rightarrow 2x = -7$

$\Rightarrow x = -\frac{7}{2}$

or  $x + 2 = 0$

$\Rightarrow x = -2$

Solution  $\begin{cases} x = -\frac{7}{2} \\ x = -2 \end{cases}$

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

$4 \times -3 = -12$   
 $-6 \times 2$

$4x^2 - 6x + 2x - 3 = 0$

$2x(2x-3) + 1(2x-3) = 0$

$(2x+1)(2x-3) = 0$

Either  $2x + 1 = 0$

$\Rightarrow 2x = -1$

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

or  $2x - 3 = 0$

$\Rightarrow 2x = +3$

$\Rightarrow x = \frac{3}{2}$

Solution  $\begin{cases} x = -\frac{1}{2} \\ x = \frac{3}{2} \end{cases}$

## SOLVING QUADRATIC EQUATIONS BY FACTORISING (2) EXERCISE

$$4) \quad 10x^2 + 13x - 3 = 0$$

$$10x - 3 = -30$$

$$+15x - 2$$

$$10x^2 + 15x - 2x - 3 = 0$$

$$5x(2x+3) - 1(2x+3) = 0$$

$$(5x-1)(2x+3) = 0$$

$$\text{Either } 5x - 1 = 0$$

$$\Rightarrow 5x = 1$$

$$\Rightarrow x = \frac{1}{5}$$

$$\text{or } 2x + 3 = 0$$

$$\Rightarrow 2x = -3$$

$$\Rightarrow x = -\frac{3}{2}$$

$$\text{Solution } \begin{cases} x = \frac{1}{5} \\ x = -\frac{3}{2} \end{cases}$$

$$5) \quad 3x^2 - 4x + 1 = 0$$

$$3x - 1 = 3$$

$$-1x - 3$$

$$3x^2 - x - 3x + 1 = 0$$

$$x(3x-1) - 1(3x-1) = 0$$

$$(x-1)(3x-1) = 0$$

$$\text{Either } x - 1 = 0$$

$$\Rightarrow x = 1$$

$$\text{or } 3x - 1 = 0$$

$$\Rightarrow 3x = 1$$

$$\Rightarrow x = \frac{1}{3}$$

$$\text{Solution } \begin{cases} x = 1 \\ x = \frac{1}{3} \end{cases}$$

$$6) \quad 3x^2 - x - 2 = 0$$

$$3x - 2 = -6$$

$$-3x + 2$$

$$3x^2 - 3x + 2x - 2 = 0$$

$$3x(x-1) + 2(x-1) = 0$$

$$(3x+2)(x-1) = 0$$

$$\text{Either } 3x + 2 = 0$$

$$\Rightarrow 3x = -2$$

$$\Rightarrow x = -\frac{2}{3}$$

$$\text{or } x - 1 = 0$$

$$\Rightarrow x = 1$$

$$\text{Solution } \begin{cases} x = -\frac{2}{3} \\ x = 1 \end{cases}$$

$$7) \quad 5x^2 - 17x + 6 = 0$$

$$5 \times 6 = 30$$

$$-15 \times -2$$

$$5x^2 - 15x - 2x + 6 = 0$$

$$5x(x-3) - 2(x-3) = 0$$

$$(5x-2)(x-3) = 0$$

$$\text{Either } 5x - 2 = 0$$

$$\Rightarrow 5x = 2$$

$$\Rightarrow x = \frac{2}{5}$$

$$\text{or } x - 3 = 0$$

$$\Rightarrow x = 3$$

$$\text{Solution } \begin{cases} x = \frac{2}{5} \\ x = 3 \end{cases}$$

$$8) \quad x^2 - 25 = 0$$

$$x^2 - 5^2 = 0$$

$$(x+5)(x-5) = 0$$

$$\text{Either } x+5 = 0$$

$$\Rightarrow x = -5$$

$$\text{or } x-5 = 0$$

$$\Rightarrow x = 5$$

$$\text{Solution } \begin{cases} x = -5 \\ x = 5 \end{cases}$$

$$9) \quad 4x^2 - 9 = 0$$

$$(2x)^2 - 3^2 = 0$$

$$(2x+3)(2x-3) = 0$$

$$\text{Either } 2x+3 = 0$$

$$\Rightarrow 2x = -3$$

$$\Rightarrow x = -\frac{3}{2}$$

$$\text{or } 2x-3 = 0$$

$$\Rightarrow 2x = 3$$

$$\Rightarrow x = \frac{3}{2}$$

$$\text{Solution } \begin{cases} x = -\frac{3}{2} \\ x = +\frac{3}{2} \end{cases}$$

$$10) \quad 25x^2 - 16 = 0$$

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

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

$$\text{Either } 5x+4 = 0$$

$$\Rightarrow 5x = -4$$

$$\Rightarrow x = -\frac{4}{5}$$

$$\text{or } 5x-4 = 0$$

$$\Rightarrow 5x = 4$$

$$\Rightarrow x = \frac{4}{5}$$

$$\text{Solution } x = -\frac{4}{5}, x = \frac{4}{5}$$