

Solving Second Degree Equations

We want to find the zeros of a second degree equation if they exist.

Zero(s): Where a function crosses the x-axis

Solve

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

$$\begin{aligned} x-1 &= 0 \\ x &= 1 \end{aligned}$$

$$x+3=0$$

$$x=-3$$

$$S = \{-3, 1\}$$

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

$$\begin{aligned} 2x+2 &= 0 \\ 2x &= -2 \\ x &= -1 \end{aligned}$$

$$\begin{aligned} 3x-1 &= 0 \\ 3x &= 1 \\ x &= \frac{1}{3} \end{aligned}$$

$$S = \{-1, \frac{1}{3}\}$$

$$c) x^2 - 8x + 15 = 0 \quad \text{Factor First!!!}$$

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

$$x-5=0$$

$$x-3=0$$

$$x=5$$

$$x=3$$

$$S = \{3, 5\}$$

$$d) 2x^2 - 5x - 3 = 0 \quad \text{It must be = to zero!}$$

$$2x^2 - 5x - 3 = 0$$

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

$$2x+1=0$$

$$x-3=0$$

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

$$x=3$$

$$S = \{-\frac{1}{2}, 3\}$$

$$e) x(x-5) = 6 \quad * \text{Expand 1st, make = to zero!}$$

$$x^2 - 5x = 6$$

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

$$(x-6)(x+1) = 0$$

$$x-6=0$$

$$x+1=0$$

$$x=6$$

$$x=-1$$

$$S = \{-1, 6\}$$