

Math Worksheet: Quadratic Equations(1)

1. Solve for x the following equation.

$$\sqrt{2x+13} - x = 5$$

$$\sqrt{2x+13} = 5 + x$$

Square  $(2x+3) = (5+x)^2$

Expand and solve  $x = -2, x = -6$

check solution : solution set  $\{-2\}$ .

2. Solve, for x, the following equation

$$x^4 - 5x^2 + 6 = 0$$

let  $u = x^2$

$$u^2 - 5u + 6 = 0$$

Solve for u:  $u = 3$  and  $u = 2$

Solve for x:  $x = \pm\sqrt{3}$  and  $x = \pm\sqrt{2}$

solution set:  $\{+\sqrt{3}, -\sqrt{2}, \sqrt{2}, \sqrt{3}\}$

3. The length L of a rectangular field is 10 m more than its width W. The area of the field is  $600 \text{ m}^2$ . Find the length and width of the field.

$L = W + 10$       Area =  $600 = W \cdot L = W(W + 10)$

Expand and solve:  $W^2 + 10W - 600 = 0$

$W_1 = 20 \text{ m}$        $W_2 = -30$  (rejected) ,      length  $L = 20 + 10 = 30 \text{ m}$

width