

QUADRATIC EQUATIONS.

EXAMPLE.

(1)

$$x^2 + y^2 = 13$$

$$xy = 6; \text{ find } x \text{ and } y.$$

Here since $xy = 6$, by adding and subtracting $2xy = 12$ from the first equation, we obtain

$$x^2 + 2xy + y^2 = 25 \quad \therefore x + y = \pm 5$$

$$x^2 - 2xy + y^2 = 1 \quad \therefore x - y = \pm 1$$

$$\text{Hence } 2x = \pm 6 \text{ and } x = \pm 3$$

$$\text{and } 2y = \pm 4 \text{ and } y = \pm 2$$

EXERCISE XVIII.

1. $x^2 + 4x = 21$; find x .

2. $x^2 - 8x = 9$; find x .

3. $2x^2 - 4x + 18 = 34$; find x .

4. $\frac{x}{5} + \frac{8}{x-18} = 8$; find x .

5. $x^2 - 2x = a$; find x .

6. $ax^2 - bx = c$; find x .

7. $x^2 + y^2 = 25$

$$xy = 12; \text{ find } x \text{ and } y.$$

8. $x^2 - y^2 = 72$

$$x + y = 12; \text{ find } x \text{ and } y.$$

9. What is that number from the square of which if you deduct 6 times itself the remainder is 40?

10. Find two numbers such that their difference is 8, and their product 240.

11. What two numbers are those the product of which is 24, and the sum of their squares 148?

12. Required a number such that if you take 12 from its square, the remainder shall be 11 times the number itself.