

Conditions

1. $x^6 - 25x^4 = 0$

2. $y^3 - 3y^2 = 16y - 48$

3. $x^3 + 2x^2 - 9x - 18 = 0$

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

5. $x^3 - 7x^2 = -5x - 35$

6. $a^4 + 2a^3 + a^2 = 0$

7. $3n^4 - 4n^2 = -1$

8. $8x^5 + 10x^4 = 4x^3 + 5x^2$

9. $2n^4 - 9n^2 + 4 = 0$

10. $8y^4 - 4y^2 = 0$

Solution

1.

$$x^6 - 25x^4 = 0$$

$$x^4(x^2 - 25) = 0$$

$$x = 0, x = 5, x = -5$$

2.

$$y^3 - 3y^2 = 16y - 48$$

$$y^2(y - 3) = 16(y - 3)$$

$$y = 3, y = 4, y = -4$$

3.

$$x^3 + 2x^2 - 9x - 18 = 0$$

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

$$x = -2, x = 3, x = -3$$

4.

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

$$x^2(x + 1) - 4(x + 1) = 0$$

$$x = -1, x = 2, x = -2$$

5.

$$x^3 + 7x^2 = -5x - 35$$

$$x^2(x + 7) + 5(x + 7) = 0$$

$$x = -7, x = \sqrt{5}, x = -\sqrt{5}$$

6.

$$a^4 + 2a^3 + a^2 = 0$$

$$a^2(a^2 + 2a + 1) = a^2(a + 1)^2 = 0$$

$$a = -1, a = 0$$

7.

$$3n^4 - 4n^2 = -1$$

$$3n^4 - 4n^2 + 1 = 0$$

$$D = 16 - 12 = 4$$

$$n^2 = \frac{4 \pm 2}{6}, n^2 = 1, n^2 = \frac{1}{3}$$

$$n = \pm 1, n = \pm \frac{1}{\sqrt{3}}$$

8.

$$8x^5 + 10x^4 = 4x^3 + 5x^2$$

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

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

$$x = -\frac{5}{4}, x = 0, x = \pm \frac{1}{\sqrt{2}}$$

9.

$$2n^4 - 9n^2 + 4 = 0$$

$$D = 81 - 32 = 49$$

$$n = \frac{9 \pm 7}{4}, n = 4, n = \frac{1}{2}$$

$$n = \pm 2, n = \pm \frac{1}{\sqrt{2}}$$

10.

$$8y^4 - 4y^2 = 0$$

$$4y^2(2y^2 - 1) = 0$$

$$y = 0, y = \pm \frac{1}{\sqrt{2}}$$