

## Intermediate Algebra Skill

### Solving Quadratic Form Equations: Positive Integer Exponents

Solve the following equations:

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

2)  $x^4 - 10x^2 + 9 = 0$

3)  $x^4 - 12x^2 + 27 = 0$

4)  $x^4 - 9x^2 + 20 = 0$

5)  $4x^4 - 19x^2 + 12 = 0$

6)  $9x^4 - 14x^2 + 5 = 0$

7)  $x^6 - 7x^3 - 8 = 0$

8)  $x^6 - 26x^3 - 27 = 0$

9)  $n^6 + 9n^3 + 8 = 0$

10)  $n^6 - 28n^3 + 27 = 0$

11)  $y^6 - 9y^3 + 8 = 0$

12)  $y^6 + 28y^3 + 27 = 0$

13)  $w^4 - 625 = 0$

14)  $16w^4 - 1 = 0$

15)  $64a^4 - 1 = 0$

16)  $a^6 - 64 = 0$

### Answer to Solving Quadratic Form Equations: Positive Integer Exponents

- 1)  $\pm 1, \pm 2$
- 2)  $\pm 1, \pm 3$
- 3)  $\pm \sqrt{3}, \pm 3$
- 4)  $\pm 2, \pm \sqrt{5}$
- 5)  $\pm \frac{\sqrt{3}}{2}, \pm 2$
- 6)  $\pm 1, \pm \frac{\sqrt{5}}{3}$
- 7)  $-1, 2, \frac{1}{2} \pm \frac{\sqrt{3}}{2}i, -1 \pm \sqrt{3}i$
- 8)  $-1, 3, \frac{1}{2} \pm \frac{\sqrt{3}}{2}i, -\frac{3}{2} \pm \frac{3\sqrt{3}}{2}i$
- 9)  $-2, -1, 1 \pm \sqrt{3}i, \frac{1}{2} \pm \frac{\sqrt{3}}{2}i$
- 10)  $1, 3, -\frac{1}{2} \pm \frac{\sqrt{3}}{2}i, -\frac{3}{2} \pm \frac{\sqrt{3}}{2}i$
- 11)  $1, 2, -\frac{1}{2} \pm \frac{\sqrt{3}}{2}i, -1 \pm \sqrt{3}i$
- 12)  $-1, -3, \frac{1}{2} \pm \frac{\sqrt{3}}{2}i, \frac{3}{2} \pm \frac{3\sqrt{3}}{2}i$
- 13)  $\pm 5, \pm 5i$
- 14)  $\pm \frac{1}{2}, \pm \frac{1}{2}i$
- 15)  $\pm \frac{1}{2}, \frac{1}{4} \pm \frac{\sqrt{3}}{4}i, -\frac{1}{4} \pm \frac{\sqrt{3}}{4}i$
- 16)  $\pm 2, -1 \pm \sqrt{3}i, 1 \pm \sqrt{3}i$