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) $\pm 2, -1 \pm \sqrt{3} i, 1 \pm \sqrt{3} i$