

Intermediate Algebra Skill

Solving Quadratic Form Equations: Rational Exponents

Solve the following equations:

1) $t^{2/3} + t^{1/3} - 6 = 0$

2) $w^{2/3} - 2w^{1/3} - 8 = 0$

3) $y^{1/3} - y^{1/6} - 6 = 0$

4) $t^{1/2} + 3t^{1/4} + 2 = 0$

5) $t^{1/3} + 2t^{1/6} = 3$

6) $m^{1/2} + 6 = 5m^{1/4}$

7) $x^{2/3} - 3x^{1/3} + 2 = 0$

8) $x^{2/3} + 4x^{1/3} - 12 = 0$

9) $6x^{2/3} + 5x^{1/3} + 1 = 0$

10) $20x^{2/3} + 7x^{1/3} - 6 = 0$

11) $x^{1/2} - 4x^{1/4} + 3 = 0$

12) $x^{1/2} - 6x^{1/4} + 8 = 0$

13) $4x^{1/2} - 8x^{1/4} + 3 = 0$

14) $6x^{1/2} - x^{1/4} - 2 = 0$

15) $2y^{2/5} - y^{1/5} - 1 = 0$

16) $6y^{2/5} + y^{1/5} - 1 = 0$

17) $x^{-2/3} + x^{-1/3} - 6 = 0$

18) $36y^{-4/3} - 13y^{-2/3} + 1 = 0$

Answers to Solving Quadratic Form Equations: Rational Exponents

- 1) $-27,8$
- 2) $-8,64$
- 3) 729
- 4) $\emptyset$
- 5) 1
- 6) $16,81$
- 7) $1,8$
- 8) $-216,8$
- 9) $-\frac{1}{27}, -\frac{1}{8}$
- 10) $\frac{8}{125}, \frac{-27}{64}$
- 11) $1,81$
- 12) $16,256$
- 13) $\frac{1}{16}, \frac{81}{16}$
- 14) $\frac{16}{81}$
- 15) $-\frac{1}{32}, 1$
- 16) $\frac{1}{243}, -\frac{1}{32}$
- 17) $-\frac{1}{27}, \frac{1}{8}$
- 18) $\pm 8, \pm 27$