

## 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)  $\pm 8, \pm 27$