
1. Find the vertex: $y = 3x^2 + 6x - 4$

2. Find the axis of symmetry: $y = -x^2 + 4x + 2$

3. Solve by using a square root:

a) $x^2 - 49 = 0$

b) $2x^2 + 6 = 50$

c) $x^2 = 24$

4. Solve by factoring:

a) $x^2 - 9x + 8 = 0$

b) $w^2 - 3w = 10$

c) $2c^2 + 4c - 6 = 0$

Scrambled answers: $\pm 2\sqrt{6}, \{1, 8\}, \{\pm 7\}, x = 2, (-1, -7), \pm\sqrt{22}, \{-2, 5\}, \{-3, 1\}$

5. Solve by completing the square.

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

b) $y^2 + 12y = 5$

c) $z^2 + 8z + 15 = 0$

6. Simplify.

a) $\sqrt{240}$

b) $\frac{3 \pm \sqrt{18}}{9}$

c) $\sqrt{360}$

d) $\frac{6 \pm \sqrt{24}}{4}$

e) $\sqrt{180}$

f) $\frac{9 \pm \sqrt{54}}{6}$

Selected answers: $\{-5, -3\}, 6\sqrt{10}, \frac{1 \pm \sqrt{2}}{3}, 6\sqrt{5}, \frac{3 \pm \sqrt{6}}{2}, 4\sqrt{15}, \{-7, -3\}, \frac{3 \pm \sqrt{6}}{2}, -6 \pm \sqrt{41}$