Name: _____

Solving Quadratics - Roots & Factoring - Homework

Questions 1 through 4 refer to the following:

Solve the given quadratic equation by taking a square root and express irrational roots in radical form:

1) $3x^2 = 27$

Show your work.

Answer: _____

2) $6(x - 2)^2 = 54$

Show your work.

Answer: _____

3) $2(x - 3)^2 - 12 = 0$

Show your work.

Answer: _____

4) $4x^2 - 81 = 0$

Show your work.

Answer: _____

Questions 5 through 8 refer to the following:

Solve the given equation, using factoring methods, for *all* values of the variable:

5) $6a^2 + 5a - 1 = 0$

Show your work.

Answer: _____

6) $3x^2 - 9x + 6 = 0$

Show your work.

Answer: _____

7) $27 = x^2 + 2$

Show your work.

Answer: _____

8) $18 = 12z - 2z^2$

Show your work.

Answer: _____

1) ±3

WORK SHOWN: $3x^2 = 27$, $x^2 = 9$, $x = \pm\sqrt{9} = \pm 3$

2) {-1,5}

WORK SHOWN: $6(x-2)^2 = 54$, $(x-2)^2 = 9$, $x - 2 = \pm\sqrt{9}$, $x = 2 \pm 3$, $x = 5$ or $x = -1$

3) $3 \pm \sqrt{6}$

WORK SHOWN: $2(x-3)^2 - 12 = 0$, $2(x-3)^2 = 12$, $(x-3)^2 = 6$, $x - 3 = \pm\sqrt{6}$, $x = 3 \pm \sqrt{6}$

4) $\pm\frac{9}{2}$

WORK SHOWN: $4x^2 - 81 = 0,\ 4x^2 = 81,\ x^2 = \frac{81}{4},\ x = \pm\sqrt{\frac{81}{4}},\ x = \pm\frac{9}{2}$

5) $\{-1, \frac{1}{6}\}$

WORK SHOWN: $6a^2 + 5a - 1 = 0$, $(6a-1)(x+1)$, $6a - 1 = 0$, $a = \frac{1}{6}$ OR $a + 1 = 0$, $a = -1$

6) {1,2}

WORK SHOWN: $3x^2 - 9x + 6 = 0$, $3(x^2 - 3x + 2) = 0$, $3(x-2)(x-1) = 0$ $x - 2 = 0$, $x = 2$ OR $x - 1 = 0$, $x - 1$

7) ±5

WORK SHOWN: $27 = x^2 + 2$, $x^2 - 25 = 0$, $(x-5)(x+5) = 0$, $x - 5 = 0$, $x = 5$ OR $x + 5 = 0$, $x = -5$

8) 3

WORK SHOWN: $18 = 12z - 2z^2$, $2z^2 - 12z + 18 = 0$, $2(z^2 - 6z + 9) = 0$, $2(z-3)^2 = 0$ $z - 3 = 0$, $z = 3$