

## Finding Zeros - Taking the Square Root

Solve each equation by taking square roots.

1)  $4b^2 - 4 = 32$

$$+4 \quad +4$$
$$4b^2 = 36$$

$$b^2 = 9$$

$$b = \pm\sqrt{9}$$

$$b = \pm 3 \text{ or } b = 3, b = -3$$

3)  $3x^2 + 3 = 303$

$$3x^2 = 300$$

$$x^2 = 100$$

$$x = \pm\sqrt{100}$$

$$x = \pm 10 \text{ or } x = 10, x = -10$$

5)  $9x^2 - 8 = 217$

$$9x^2 = 225$$

$$x^2 = \frac{225}{9}$$

$$x = \pm\sqrt{\frac{225}{9}} = \pm\frac{\sqrt{225}}{\sqrt{9}}$$

$$x = \pm\frac{5}{3}$$

7)  $10m^2 + 1 = 751$

$$10m^2 = 750$$

$$m^2 = 75$$

$$m = \pm\sqrt{75}$$

$$m = \pm\sqrt{25 \cdot 3}$$

$$m = \pm 5\sqrt{3}$$

9)  $3k^2 + 8 = 14$

$$3k^2 = 6$$

$$k^2 = 2$$

$$k = \pm\sqrt{2}$$

11)  $7 - 6p^2 = -371$

$$-6p^2 = -378$$

$$p^2 = 63$$

$$p = \pm\sqrt{63}$$

$$p = \pm\sqrt{9 \cdot 7}$$

$$p = \pm 3\sqrt{7}$$

2)  $4n^2 + 9 = 153$

$$4n^2 = 144$$

$$n^2 = 36$$

$$n = \pm\sqrt{36}$$

$$n = \pm 6 \text{ or } n = 6, n = -6$$

4)  $81x^2 + 7 = 88$

$$81x^2 = 81$$

$$x^2 = 1$$

$$x = \pm\sqrt{1}$$

$$x = \pm 1$$

6)  $3n^2 + 2 = 14$

$$3n^2 = 12$$

$$n^2 = 4$$

$$n = \pm\sqrt{4}$$

$$n = \pm 2$$

8)  $3b^2 + 8 = 68$

$$3b^2 = 60$$

$$b^2 = 20$$

$$b = \pm\sqrt{20}$$

$$b = \pm\sqrt{4 \cdot 5}$$

$$b = \pm 2\sqrt{5}$$

10)  $3v^2 - 6 = 156$

$$3v^2 = 162$$

$$v^2 = 54$$

$$v = \pm\sqrt{54}$$

$$v = \pm\sqrt{9 \cdot 6}$$

$$v = \pm 3\sqrt{6}$$

12)  $-5 - 6k^2 = -173$

$$-6k^2 = -168$$

$$k^2 = 28$$

$$k = \pm\sqrt{28}$$

$$k = \pm\sqrt{4 \cdot 7}$$

$$k = \pm 2\sqrt{7}$$