SOLVING SIMPLE QUADRATIC EQUATIONS

Simple quadratic equations of the form $x^2 = c$:

- $x^2 = 9$ has two solutions because 9 is a positive number.

$$x^2 = 9$$

$$x = \sqrt{9}, \qquad x = -\sqrt{9}$$

$$x = 3, \qquad x = -3$$

$$x = \pm 3, \text{ where } \pm 3 \text{ represent both solutions.}$$

Note: $3^2 = 9$ and $(-3)^2 = 9$.

- $x^2 = 0$ has one solution ($x = 0$) because $0^2 = 0$.
- $x^2 = -9$ has no solution because the square of any number is 0 or positive.

SOLVING SIMPLE QUADRATIC EQUATIONS

Solve the following equations. Round to two decimal places in part **b** by using a calculator to assist.

a $x^2 = 81$

b $x^2 = 23$

SOLUTION	EXPLANATION
a $x = 9$ or $x = -9$	The equation has two solutions because 81 is a positive number. $9^2 = 81$ and $(-9)^2 = 81$.
b $x = \sqrt{23} = 4.80$ (to 2 decimal places) or $x = -\sqrt{23} = -4.80$ (to 2 decimal places)	The number 23 is not a perfect square so $\sqrt{23}$ can be rounded if required.