

## Exponents In Algebra

**1** Solve.

$$8^0 = \underline{\quad}$$

$$b^0 = \underline{\quad}$$

**2** Solve.

$$8^1 = \underline{\quad}$$

$$b^1 = \underline{\quad}$$

**3** Solve.

$$(\sqrt{10})^2 = \underline{\quad}$$

$$(\sqrt[3]{15})^3 = \underline{\quad}$$

**4** Solve. (assume  $x \geq 0$ )

$$\sqrt{x^2} = \underline{\quad}$$

$$\sqrt[3]{x^3} = \underline{\quad}$$

**5** Solve for x.

$$\sqrt{x} = 5$$

**6** Solve for x.

$$x^2 = 49$$

**7** Solve for x.

$$\sqrt{x} = 10$$

**8** Solve for x.

$$x^2 = 81$$

**9** Solve for x.

$$\sqrt[3]{x} = 4$$

**10** Solve for x.

$$x^4 = 16$$

## Exponents In Algebra

**1** Solve.

$$8^0 = \underline{1}$$

$$b^0 = \underline{1}$$

**2** Solve.

$$8^1 = \underline{8}$$

$$b^1 = \underline{b}$$

**3** Solve.

$$(\sqrt{10})^2 = \underline{10}$$

$$(\sqrt[3]{15})^3 = \underline{15}$$

**4** Solve. (assume  $x \geq 0$ )

$$\sqrt{x^2} = \underline{x}$$

$$\sqrt[3]{x^3} = \underline{x}$$

**5** Solve for x.

$$\sqrt{x} = 5$$

$$\sqrt{x}^2 = 5^2$$

$$\underline{x = 25}$$

**6** Solve for x.

$$x^2 = 49$$

$$\sqrt{x^2} = \pm\sqrt{49}$$

$$\underline{x = \pm 7}$$

**7** Solve for x.

$$\sqrt{x} = 10$$

$$\sqrt{x}^2 = 10^2$$

$$\underline{x = 100}$$

**8** Solve for x.

$$x^2 = 81$$

$$\sqrt{x^2} = \pm\sqrt{81}$$

$$\underline{x = \pm 9}$$

**9** Solve for x.

$$\sqrt[3]{x} = 4$$

$$\sqrt[3]{x}^3 = 4^3$$

$$\underline{x = 64}$$

**10** Solve for x.

$$x^4 = 16$$

$$\sqrt[4]{x^4} = \pm\sqrt[4]{16}$$

$$\underline{x = \pm 2}$$

## Exponent - Root Relationship

A-EIA 2

**Instructions:** Use what you've learned about the relationship between exponents and roots to evaluate these expressions.

1  $(\sqrt{7})(\sqrt{7}) = \underline{7}$

2  $\sqrt{(x)(x)} = \underline{x}$   
where  $x \geq 0$

3  $(\sqrt{15})(\sqrt{15}) = \underline{\hspace{2cm}}$

4  $(\sqrt[3]{x})(\sqrt[3]{x})(\sqrt[3]{x}) = \underline{\hspace{2cm}}$

5  $(\sqrt{b})^2 = \underline{\hspace{2cm}}$   
where  $b \geq 0$

6  $\pm\sqrt{(a \times a)} = \underline{\hspace{2cm}}$

7  $\sqrt{(9 \times 9)} = \underline{\hspace{2cm}}$

8  $(\sqrt{99})^2 = \underline{\hspace{2cm}}$

9  $^2\sqrt{c^2} = \underline{\hspace{2cm}}$   
where  $c \geq 0$

10  $(\sqrt{10})(\sqrt{10}) = \underline{\hspace{2cm}}$

11  $(\sqrt[3]{2x})^3 = \underline{\hspace{2cm}}$

12  $\sqrt{(5 \times 5)} = \underline{\hspace{2cm}}$

13  $\pm\sqrt{(n)(n)} = \underline{\hspace{2cm}}$

14  $\sqrt[3]{b^3} = \underline{\hspace{2cm}}$

15  $\sqrt{(x+1)^2} = \underline{\hspace{2cm}}$   
where  $x \geq 0$

16  $\sqrt[3]{(4)(4)(4)} = \underline{\hspace{2cm}}$

## 1-Step Equations with Exponents & Roots - Set 1

A-ESR 3

**Instructions:** Solve for x. (Remember to do the same thing to both sides of the equation.)

1  $\sqrt{x} = 4$   
 $\sqrt{x}^2 = 4^2$   
 $x = 16$

2  $x^2 = 49$   
 $\sqrt{x^2} = \pm\sqrt{49}$   
 $x = \pm 7$

3  $x^2 = 100$

4  $\sqrt{x} = 2$

5  $\sqrt{x} = 8$

6  $x^2 = 81$

7  $11 = \sqrt{x}$

8  $x^3 = 8$

9  $x^2 = 36$

10  $\sqrt[3]{x} = 5$

## 1-Step Equations with Exponents & Roots - Set 2

A-ESR 4

**Instructions:** Solve for x. (Remember to do the same thing to both sides of the equation.)

1  $x^2 = 64$

2  $\sqrt{x} = 6$

3  $x^2 = 400$

4  $\sqrt{x} = 12$

5  $\sqrt[3]{x} = 6$

6  $x^4 = 81$

7  $\sqrt[3]{x} = 2$

8  $x^3 = 125$

9  $x^2 = 144$

10  $x^3 = 27$

## Exponent - Root Relationship

A-EIA 2

**Instructions:** Use what you've learned about the relationship between exponents and roots to evaluate these expressions.

1  $(\sqrt{7})(\sqrt{7}) = \underline{7}$

2  $\sqrt{(x)(x)} = \underline{x}$   
where  $x \geq 0$

3  $(\sqrt{15})(\sqrt{15}) = \underline{15}$

4  $(\sqrt[3]{x})(\sqrt[3]{x})(\sqrt[3]{x}) = \underline{x}$

5  $(\sqrt{b})^2 = \underline{b}$   
where  $b \geq 0$

6  $\pm\sqrt{(a \times a)} = \underline{\pm a}$

7  $\sqrt{(9 \times 9)} = \underline{9}$

8  $(\sqrt{99})^2 = \underline{99}$

9  $\sqrt[2]{c^2} = \underline{c}$   
where  $c \geq 0$

10  $(\sqrt{10})(\sqrt{10}) = \underline{10}$

11  $(\sqrt[3]{2x})^3 = \underline{2x}$

12  $\sqrt{(5 \times 5)} = \underline{5}$

13  $\pm\sqrt{(n)(n)} = \underline{\pm n}$

14  $\sqrt[3]{b^3} = \underline{b}$

15  $\sqrt{(x+1)^2} = \underline{x+1}$   
where  $x \geq 0$

16  $\sqrt[3]{(4)(4)(4)} = \underline{4}$

## 1-Step Equations with Exponents & Roots - Set 1

A-ESR 3

**Instructions:** Solve for x. (Remember to do the same thing to both sides of the equation.)

$$\begin{aligned} 1 \quad \sqrt{x} &= 4 \\ \sqrt{x}^2 &= 4^2 \\ x &= 16 \end{aligned}$$

$$\begin{aligned} 2 \quad x^2 &= 49 \\ \sqrt{x^2} &= \pm\sqrt{49} \\ x &= \pm 7 \end{aligned}$$

$$\begin{aligned} 3 \quad x^2 &= 100 \\ \sqrt{x^2} &= \pm\sqrt{100} \\ x &= \pm 10 \end{aligned}$$

$$\begin{aligned} 4 \quad \sqrt{x} &= 2 \\ \sqrt{x}^2 &= 2^2 \\ x &= 4 \end{aligned}$$

$$\begin{aligned} 5 \quad \sqrt{x} &= 8 \\ \sqrt{x}^2 &= 8^2 \\ x &= 64 \end{aligned}$$

$$\begin{aligned} 6 \quad x^2 &= 81 \\ \sqrt{x^2} &= \pm\sqrt{81} \\ x &= \pm 9 \end{aligned}$$

$$\begin{aligned} 7 \quad 11 &= \sqrt{x} \\ 11^2 &= \sqrt{x}^2 \\ 121 &= x \\ \text{or } x &= 121 \end{aligned}$$

$$\begin{aligned} 8 \quad x^3 &= 8 \\ \sqrt[3]{x^3} &= \sqrt[3]{8} \\ x &= 2 \end{aligned}$$

$$\begin{aligned} 9 \quad x^2 &= 36 \\ \sqrt{x^2} &= \pm\sqrt{36} \\ x &= \pm 6 \end{aligned}$$

$$\begin{aligned} 10 \quad \sqrt[3]{x} &= 5 \\ \sqrt[3]{x}^3 &= 5^3 \\ x &= 125 \end{aligned}$$

## 1-Step Equations with Exponents & Roots - Set 2

A-ESR 4

**Instructions:** Solve for x. (Remember to do the same thing to both sides of the equation.)

1  $x^2 = 64$   
 $\sqrt{x^2} = \pm\sqrt{64}$   
 $x = \pm 8$

2  $\sqrt{x} = 6$   
 $\sqrt{x}^2 = 6^2$   
 $x = 36$

3  $x^2 = 400$   
 $\sqrt{x^2} = \pm\sqrt{400}$   
 $x = \pm 20$

4  $\sqrt{x} = 12$   
 $\sqrt{x}^2 = 12^2$   
 $x = 144$

5  $\sqrt[3]{x} = 6$   
 $\sqrt[3]{x}^3 = 6^3$   
 $x = 216$

6  $x^4 = 81$   
 $\sqrt[4]{x^4} = \pm\sqrt[4]{81}$   
 $x = \pm 3$

7  $\sqrt[3]{x} = 2$   
 $\sqrt[3]{x}^3 = 2^3$   
 $x = 8$

8  $x^3 = 125$   
 $\sqrt[3]{x^3} = \sqrt[3]{125}$   
 $x = 5$

9  $x^2 = 144$   
 $\sqrt{x^2} = \pm\sqrt{144}$   
 $x = \pm 12$

10  $x^3 = 27$   
 $\sqrt[3]{x^3} = \sqrt[3]{27}$   
 $x = 3$