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.

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

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

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

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

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

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.

$$x^4 = 16$$

Name: _____

Date: _____

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.

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

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

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

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

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

5 Solve for x.

$$\sqrt{x} = 5$$

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

$$\boxed{x = 25}$$

6 Solve for x.

$$x^2 = 49$$

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

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

7 Solve for x.

$$\sqrt{x} = 10$$

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

$$\boxed{x = 100}$$

8 Solve for x.

$$x^2 = 81$$

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

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

9 Solve for x.

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

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

$$\boxed{x = 64}$$

10 Solve for x.

$$x^4 = 16$$

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

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

See Video for step-by-step solutions to each problem.

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Name: _____

Date: _____

Exponent Rules Practice

Instructions: Find the value of these exponents using the rules that you learned in the video. You will also need to know the perfect squares from the multiplication table.

1 $2^0 = \underline{\ 1\ }$

2 $10^1 = \underline{\ 10\ }$

3 $5^2 = \underline{\qquad}$

4 $5^0 = \underline{\qquad}$

5 $x^1 = \underline{\qquad}$

6 $2^2 = \underline{\qquad}$

7 $7^2 = \underline{\qquad}$

8 $7^1 = \underline{\qquad}$

9 $7^0 = \underline{\qquad}$

10 $x^0 = \underline{\qquad}$

11 $a^1 = \underline{\qquad}$

12 $a^0 = \underline{\qquad}$

13 $6^2 = \underline{\qquad}$

14 $3^2 = \underline{\qquad}$

15 $3^1 = \underline{\qquad}$

16 $12^2 = \underline{\qquad}$

17 $8^2 = \underline{\qquad}$

18 $m^0 = \underline{\qquad}$

19 $29^1 = \underline{\qquad}$

20 $32^0 = \underline{\qquad}$

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Name: _____

Date: _____

Exponent - Root Relationship

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 ≥ 0

3 $(\sqrt{15})(\sqrt{15}) = \underline{\hspace{1cm}}$

4 $(\sqrt[3]{x})(\sqrt[3]{x})(\sqrt[3]{x}) = \underline{\hspace{1cm}}$

5 $(\sqrt{b})^2 = \underline{\hspace{1cm}}$
where b ≥ 0

6 $\pm\sqrt{(a \times a)} = \underline{\hspace{1cm}}$

7 $\sqrt{(9 \times 9)} = \underline{\hspace{1cm}}$

8 $(\sqrt{99})^2 = \underline{\hspace{1cm}}$

9 $\sqrt[2]{c^2} = \underline{\hspace{1cm}}$
where c ≥ 0

10 $(\sqrt{10})(\sqrt{10}) = \underline{\hspace{1cm}}$

11 $(\sqrt[3]{2x})^3 = \underline{\hspace{1cm}}$

12 $\sqrt{(5 \times 5)} = \underline{\hspace{1cm}}$

13 $\pm\sqrt{(n)(n)} = \underline{\hspace{1cm}}$

14 $\sqrt[3]{b^3} = \underline{\hspace{1cm}}$

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

16 $\sqrt[3]{(4)(4)(4)} = \underline{\hspace{1cm}}$

Name: _____

Date: _____

1-Step Equations with Exponents & Roots - Set 1

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

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

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

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

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1-Step Equations with Exponents & Roots - Set 2

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 $x^3 = 27$

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Name: _____

Date: _____

Exponent Rules Practice

Instructions: Find the value of these exponents using the rules that you learned in the video. You will also need to know the perfect squares from the multiplication table.

1 $2^0 =$ __1__

2 $10^1 =$ __10__

3 $5^2 =$ __25__

4 $5^0 =$ __1__

5 $x^1 =$ __x__

6 $2^2 =$ __4__

7 $7^2 =$ __49__

8 $7^1 =$ __7__

9 $7^0 =$ __1__

10 $x^0 =$ __1__

11 $a^1 =$ __a__

12 $a^0 =$ __1__

13 $6^2 =$ __36__

14 $3^2 =$ __9__

15 $3^1 =$ __3__

16 $12^2 =$ __144__

17 $8^2 =$ __64__

18 $m^0 =$ __1__

19 $29^1 =$ __29__

20 $32^0 =$ __1__

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Exponent - Root Relationship

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 ≥ 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 ≥ 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 ≥ 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 ≥ 0

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

Name: _____

Date: _____

1-Step Equations with Exponents & Roots - Set 1

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
$$x^2 = 100$$
$$\sqrt{x^2} = \pm\sqrt{100}$$
$$x = \pm 10$$

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

5
$$\sqrt{x} = 8$$
$$\sqrt{x}^2 = 8^2$$
$$x = 64$$

6
$$x^2 = 81$$
$$\sqrt{x^2} = \pm\sqrt{81}$$
$$x = \pm 9$$

7
$$11 = \sqrt{x}$$
$$11^2 = \sqrt{x}^2$$
$$121 = x$$
or x = 121

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

9
$$x^2 = 36$$
$$\sqrt{x^2} = \pm\sqrt{36}$$
$$x = \pm 6$$

10
$$\sqrt[3]{x} = 5$$
$$\sqrt[3]{x}^3 = 5^3$$
$$x = 125$$

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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 $x^3 = 27$

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

$x = 3$

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