Taking the Opposite, Reciprocals & Roots (1A2.0)

Name _____

Class _____   Date _____

Score _____

It is often useful to find the **opposite**, **reciprocal**, or **square root** of an expression:

| Taking the Opposite | Reciprocals | Roots |

Taking the Opposite

Taking the "opposite" of a number means finding another number that, once added to the first number, equals 0:

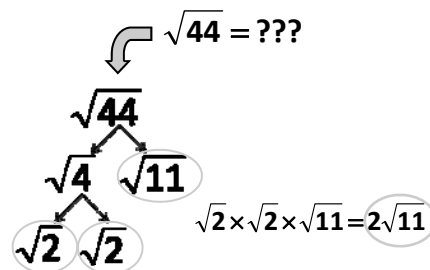| Original	"Opposite"
5	-5
x	$-x$
$32n$	$-32n$
$-3y^2$	$3y^2$

Reciprocals

A reciprocal is a number that you multiply by so that the result equals 1. The easiest way to find it is to just flip the fraction over.

Fraction: Flip!   Reciprocal:

$$\frac{4}{5} \implies \frac{4}{5} \implies \frac{5}{4}$$

Roots

When there is a number inside the square root symbol it is equal to whatever number times itself equals that number:

$\sqrt{4} = 2 \implies$ (since $2^2 = 4$)

$\sqrt{44} = ???$

$\sqrt{44}$

$\sqrt{4}$ $\sqrt{11}$

$\sqrt{2}$ $\sqrt{2}$

$\sqrt{2} \times \sqrt{2} \times \sqrt{11} = 2\sqrt{11}$

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1) If $x = -\dfrac{1}{2}$, then $-x =$

A. -2

B. -1

C. $\dfrac{1}{2}$

D. 2

2) If $x = -5$, then $2(-x) =$

A. 10
B. 5
C. -5
D. -10

3) If $x = 2$ then $-x^3 =$

A. 16
B. 8
C. -8
D. -16

4) If $x = 3$, then $\dfrac{1}{-x} =$

A. 3

B. $\dfrac{1}{3}$

C. $-\dfrac{1}{3}$

D. -3

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5) If $\frac{2}{3}x = 1$, then x =

A. 3

B. $\frac{2}{3}$

C. 1

D. $\frac{3}{2}$

6) The multiplicative inverse, or reciprocal, of $\frac{5}{2}$ =

A. 5

B. 2

C. $\frac{2}{5}$

D. $\frac{1}{5}$

7) If $\frac{3}{4}a = 1$, then a =

A. 4

B. 3

C. $\frac{4}{3}$

D. $\frac{2}{3}$

8) The multiplicative inverse or reciprocal of $-\frac{1}{2}$ =

A. 2

B. 1

C. -1

D. -2

9) If $-\frac{1}{3}b = 1$, then b =

A. 3

B. $\frac{1}{3}$

C. $-\frac{1}{3}$

D. -3

10) If $4 = \sqrt{x}$, then x =

A. 2
B. 4
C. 8
D. 16

11) $\sqrt{x^2}$ =

A. x^2

B. x

C. $2x$

D. $\frac{1}{x}$

12) If the area of square ABCD = 121, what is its perimeter?

A. 915
B. 44
C. 30
D. 24

13) $\sqrt{81} \bullet \sqrt{225} =$

A. 18,225
B. 180
C. 135
D. 45

14) $\sqrt{169} \bullet \sqrt{4} \bullet \sqrt{49} =$

A. 3,136
B. 364
C. 196
D. 182

15) $\left(\dfrac{1}{\sqrt{4}} \right)^2 =$

A. $\dfrac{1}{2}$

B. $\dfrac{1}{4}$

C. $\dfrac{1}{8}$

D. $\dfrac{1}{16}$

16) When an integer, *a*, is multiplied by $\dfrac{1}{\sqrt{400}}$, the product is 1. What is *a*?

A. $\dfrac{1}{20}$

B. 2

C. 20

D. 200