

Multiplying and Dividing Integers; Exponents; Square Roots; Solving Equations

We can figure out how to multiply by negative numbers by extending the following patterns:

$2 \cdot 4 = 8$	$(-2) \cdot 4 = -8$
$2 \cdot 3 = 6$	$(-2) \cdot 3 = -6$
$2 \cdot 2 = 4$	$(-2) \cdot 2 = -4$
$2 \cdot 1 = 2$	$(-2) \cdot 1 = -2$
$2 \cdot 0 = 0$	$(-2) \cdot 0 = 0$
$2 \cdot (-1) = \underline{\hspace{1cm}}$	$(-2) \cdot (-1) = \underline{\hspace{1cm}}$
$2 \cdot (-2) = \underline{\hspace{1cm}}$	$(-2) \cdot (-2) = \underline{\hspace{1cm}}$

When multiplying two integers...

...if _____ sign, product is _____. (ex: $(-6) \cdot (-3) = 18$)

...if _____ signs, product is _____. (ex: $(-6) \cdot 3 = -18$)

Ex 1.

$$-5 \cdot (-7) =$$

$$-8(12) =$$

$$-2(-3)(-1) =$$

$$4(-2)(-3)(-2)(-1) =$$

If multiplying _____ number of negative factors, then product is _____.

If multiplying _____ number of negative factors, then product is _____.

Ex 2.

$$(-4)^2 =$$

$$(-2)^5 =$$

$$-4^2 =$$

Dividing

Rules are same as with multiplication.

Ex 3.

$$36 \div (-4) =$$

$$(-50) \div (-2) =$$

$$\frac{-10}{0}$$

Ex 4.

Solve: $6x = -42$

Square Roots

Recall: A square root of 25 is a number such that when you square it, you get 25.

Now that we have negative numbers, this could be either ___ or ___, since _____ and _____.

The positive square root of a number is called the _____.

When we write $\sqrt{25}$, we mean the principal square root, which is 5.

Ex 5.

Find all square roots of 64.

What is the principal square root of 64?

Ex 6.

Find all square roots of -16 .

Ex 7.

Simplify $-\sqrt{81}$.

Ex 8.

Simplify $\sqrt{-81}$.

Additive Inverses (revisited)**Ex 9.**

Simplify the following.

$$-(-3) =$$

$$-(2) =$$

$$-(-(-4)) =$$

$$-(-(-(-(-(-(-10)))))) =$$