Multiply or Divide Integers

You can use a pattern to multiply integers. Look at the pattern.

$$3 \times 2 = 6 \qquad -2 \times 3 = -6$$
$$3 \times 1 = 3 \qquad -2 \times 1 = -2$$
$$3 \times 0 = 0 \qquad -2 \times 0 = 0$$
$$3 \times -1 = -3 \qquad -2 \times -1 = 2$$
$$3 \times -2 = -6 \qquad -2 \times -3 = 6$$

When you multiply a positive integer by a negative integer, the product is a negative integer.

$8 \times -2 = -16$ **and** $-8 \times 2 = -16$

When you multiply two negative integers, the product is a positive integer.

$-6 \times -5 = 30$

You can use a pattern to divide integers. Look at the pattern.

$$3 \times 2 = 6 \qquad 6 \div 3 = 2$$
$$-3 \times 2 = 3 \qquad -6 \div -3 = 2$$
$$3 \times -2 = 6 \qquad -6 \div 3 = 0$$
$$-3 \times 2 = -6 \qquad 6 \div 3 = 2$$

When you divide two negative integers, the quotient is positive.

$$-12 \div -2 = 6$$

When you divide a positive integer by a negative integer, the quotient is negative.

$$12 \div -2 = -6$$

When you divide a negative integer by a positive integer, the quotient is negative.

$$-12 \div 2 = -6$$

Grade 6

The product of two or more integers can be obtained by multiplying their signs first and then their values.

$$(+)\cdot(+) = +$$
$$(-)\cdot(-) = +$$
$$(-)\cdot(+) = -$$
$$(+)\cdot(-) = -$$

When multiplying two integers two cases are to be considered:

1) Same sign: The product a pair of integers having the same sign is positive
2) Opposite signs: The product a pair of integers having the same sign is negative.

To multiply two or more integers:

Count the number of negative numbers in the product.

➢ If the number of negative numbers (-)is even, then the product is positive.
➢ If the number of negative numbers (-)is odd, then the product is negative.

Examples:

A- Find the product.

1) 5 x – 7	2) – 31 x – 2	3) – 12 x - 3	4) 6 x – 42
– 35	**+ 62**	**+ 36**	**– 252**

B- Use mental math to find the value of the variable.

5) 8a = – 40   6) ⁻5y = 35   7) ⁻ 9t = ⁻ 54
   a = – 5   **y = – 7**   **t = + 6**

C- Find the quotient.

8) 24 ÷ ⁻ 2   9) ⁻ 36 ÷ ⁻ 6   10) ⁻ 81 ÷ ⁻ 9   11) 72 ÷ ⁻ 4
   ⁻ 12   **+ 6**   **+ 9**   **⁻ 18**

D- Use mental math to find the value of the variable.

12) 45 ÷ d = ⁻ 15   13)w ÷ ⁻ 4 = ⁻ 7   14)⁻ 54 ÷ x = 9
    d = ⁻ 3   **w = 28**   **x = ⁻ 6**