

Remember: $2 + 2 + 2 = (2)(3)$

There is a pattern to remember and understand:

- The product of two numbers with the same sign is a positive number.
- The product of two numbers with a different sign is a negative number.

Task 1: Multiply.

a) $(-8)(4)$ -32

-32

c) $-9(-10)$ 90

90

d) $8(-5)$ -40

-40

b) $14(-1)$ -14

-14

e) $(-3)(-4)$ 12

12

Task 3: Multiply.

a) $(-1.2)(0.05)$ -0.06

-0.06

c) $(-\frac{4}{5})(-\frac{20}{1})$ 16

$\frac{80}{5} = 16$

Calculator!

b) $\frac{2}{3} \cdot (-\frac{7}{10}) = -\frac{14}{30} \div \frac{2}{2} = -\frac{7}{15}$ $-\frac{7}{15}$

$-\frac{7}{15}$

d) $-\frac{3}{5} \cdot \frac{4}{9} = -\frac{12}{45} \div \frac{3}{3} = -\frac{4}{15}$ $-\frac{4}{15}$

$-\frac{4}{15}$

Zero as a Factor

If b is a real number, then $b(0) = 0$. Also, $0(b) = 0$. Anything times zero is zero.

Task 2: Perform the indicated operation.

a) $(7)(0)(-6)$ $0(-6) = 0$

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b) $(-2)(-3)(-4)$ $6(-4) = -24$

$6(-4) = -24$

c) $(-1)(5)(-9)$ $-5(-9) = 45$

$-5(-9) = 45$

d) $(-4)(-11) - (5)(-2)$ $44 - (-10) = 54$

$44 - (-10) = 54$

These problems have **common errors**. An exponent only changes what it **touches**. So, if it is touching a number it only changes the number **NOT** the **-** in front. If an exponent is touching a **()** then it changes **everything inside the ()**.

$(-3)^2$ versus -3^2

Task 4: Evaluate.

a) $(-2)^2$ $(-2)(-2) = 4$

$(-2)(-2) = 4$

b) -2^3 $-(2)(2)(2) = -8$

$-(2)(2)(2) = -8$

c) $(-3)^2$ $(-3)(-3) = 9$

$(-3)(-3) = 9$

d) -3^2 $-(3)(3) = -9$

$-(3)(3) = -9$

e) -6^3 $-(6)(6)(6) = -216$

$-(6)(6)(6) = -216$

36

-216

Finding Reciprocals

Just like every **difference** can be written as the **sum** of a positive and negative number, the **quotient** can be written as a **product** too. The special relationship is their product is 1 and they are called **reciprocals** or **multiplicative inverses** of each other.

*** Notice 0 has NO multiplicative inverse since 0 multiplied by any number is never 1 and always 0!***

Task 5: Find the reciprocal of each number.

a) $\frac{22}{1} = \frac{1}{22}$

b) $\frac{3}{16} = \frac{16}{3}$

c) $-10 = \frac{1}{-10}$

b) $-\frac{9}{13} = \frac{-13}{9}$

e) $\frac{8}{3} = \frac{3}{8}$

f) $15 = \frac{1}{15}$

Still need help with: