

Curriculum Outcome

N1: Demonstrate an understanding of rational numbers by: comparing and ordering rational numbers; solving problems that involve arithmetic operations on rational numbers.

Student Friendly:

"BEDMAS with fractions and decimals"



Grade 9 Warm Up



1) Determine the missing number in each division statement.

a) $\underline{\quad} \div 7.25 = 2.1$

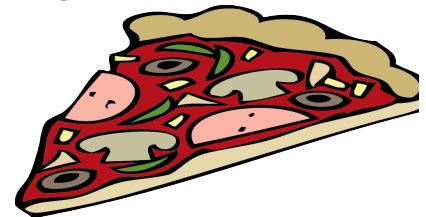
b) $\underline{\quad} \times -0.7 = 0.896$

c) $\frac{91}{42} \div \square = \frac{13}{7}$

Word Problems



1) A pizza cost \$25.98. If 7 people are sharing the cost, what was the cost for each person?





Grade 9 Warm Up



$$\boxed{15} \div 3 = 5$$

$$\square = 3 \times 5$$

$$\boxed{3} \times 4 = 12$$

$$\square = 12 \div 4$$

1) Determine the missing number in each division statement.

a) $\boxed{} \div 7.25 = 2.1$

$$\square = 7.25 \times 2.1$$

$$\square = 15.225$$

b) $\boxed{} \times -0.7 = 0.896$

$$\square = \frac{0.896}{-0.7}$$

$$\square = -1.28$$

c) $\frac{91}{42} \div \boxed{} = \frac{13}{7}$

$$\square = \frac{91}{42} \div \frac{13}{7}$$

$$\square = \frac{\cancel{7}91}{\cancel{6}42} \times \frac{\cancel{7}1}{\cancel{13}1}$$

$$\square = \frac{7}{6} \times \frac{1}{1}$$

$$\square = \frac{7}{6}$$

$$15 \div \boxed{3} = 5$$

$$\square = 15 \div 5$$

Word Problems

1) A pizza cost \$25.98. If 7 people are sharing the cost, what was the cost for each person?

$$25.98 \div 7$$

$$= \$ 3.71$$

Calculator Use

$$(2)^4 = 2 \times 2 \times 2 \times 2 \\ = 16$$

Use x^y or y^x or $^$ for exponents on calculators

$$(3)^2 \\ = (3)(3) \\ = 9$$

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

$$(-2)^3 \\ = (-2)(-2)(2) \\ \quad \quad \quad \begin{matrix} \downarrow \\ (+) \quad (-) \end{matrix} \\ = -8$$

$$(-5)^3 = -125$$

x^{\square}

x^y

^

x^{\wedge}

y^x

x^2

$$\left(\frac{4}{5}\right)^2 = \left(\frac{4}{5}\right) \times \left(\frac{4}{5}\right) = \frac{16}{25}$$

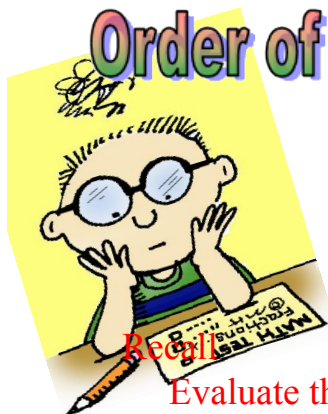
A handwritten diagram illustrating the expansion of the square of a fraction. A purple arrow points from the exponent 2 in $\left(\frac{4}{5}\right)^2$ to the fraction $\frac{4^2}{5^2}$. A red arrow points from $\frac{4^2}{5^2}$ to the final result $\frac{16}{25}$.

$$\left(\frac{-2}{3}\right)^3 \rightarrow \frac{(-2)^3}{(3)^3} = \frac{-8}{27}$$

A handwritten diagram showing the expansion of the cube of a fraction. A black arrow points from the exponent 3 in $\left(\frac{-2}{3}\right)^3$ to the fraction $\frac{(-2)^3}{(3)^3}$.

Section 3.6

Order of Operations with Rational Numbers



Remember from operations

"BEDMAS".....order of



In the order that they appear

~~B~~~~E~~~~D~~~~M~~~~A~~~~S~~

Recall

Evaluate the following

$$\begin{aligned}
 1) \quad & (-5) - 3[18 \div (-3)]^2 \\
 & = (-5) - 3[-6]^2 \\
 & = (-5) - 3(36) \\
 & = (-5) - 108 \\
 & = -113
 \end{aligned}$$

Do we need more practice?



$$\begin{aligned}
 1) \quad & 3 - [(-5) + 1]^3 \\
 & 3 - [(-4)]^3 \\
 & 3 + [+64] \\
 & = 67
 \end{aligned}$$

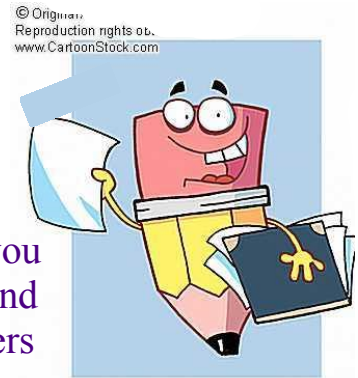
$$\begin{aligned}
 2) \quad & [(-3 + 5)^2 + 6(-2) + 7(3)]^2 \\
 & [(2)^2 + 6(-2) + 7(3)]^2 \\
 & = [4 + 6(-2) + 7(3)]^2 \\
 & = [4 + (-12) + 21]^2 \\
 & = [13]^2 \\
 & = 169
 \end{aligned}$$

Using the Order of Operations with Decimals

Evaluate the following:

It is no difference with
decimals....follow ~~B~~EDMAS

With decimals you
may need to round
your final answers



$$1) (-1.3) + 0.8 \div (-0.2) \times 5$$

$$(-1.3) + \underbrace{(-4)} \times 5$$

$$(-1.3) + (-20)$$

$$= -21.3$$

$$\begin{aligned} & 2) (-3.6) - 1.7 \div [0.6 + (-0.8)]^2 \\ & = (-3.6) - 1.7 \div [1.4]^2 \\ & = (-3.6) - 1.7 \cdot [1.96] \\ & = (-3.6) - 0.86 \\ & = -4.46 \end{aligned}$$

$$\left[(-3+5)^2 + 6(-2) + 7(3) \right]^2$$

Fractions

$$\left(\frac{2}{5}\right)^2 \div \left(\frac{2}{3} + \frac{4}{5}\right)$$

$$\left(\frac{2}{5}\right)^2 \div \left(\frac{10}{15} + \frac{12}{15}\right)$$

$$\left(\frac{2}{5}\right)^2 \div \left(\frac{22}{15}\right)$$

$$\frac{4}{25} \div \left(\frac{22}{15}\right)$$

$$\frac{\cancel{4}^2}{\cancel{25}_5} \times \frac{\cancel{15}^3}{\cancel{22}^{11}}$$

$$\frac{2}{5} \times \frac{3}{11}$$

$$= \frac{6}{55}$$

Class / Homework

Worksheet

All Question (Show work)

REVIEW to BEDMAS

Date _____ Pg _____

Evaluate each expression. (SHOW WORK)

1) $(-2) + (3 - 5) \times (-9)$

2) $3\left(9 - \frac{20}{-10}\right)$

3) $(-8) \times (-9) + 3 - (-10)$

4) $6^2 - (-4) \times 9$

5) $(15 \times 2) \div (2 - 8 - 4)$

6) $(-2) \times (15 \times 3 - 9) \div (-6)$

7) $3 + (-8)^2 + 4 \div 4$

8) $(6^2 - (-2))((-3) + (+1))$

9) $10 \div 5 - (4 + (-3)^3)$

10) $(-3 - 4) \times 3 \times 6 \div 6$

11) $(-11 \times 2 - -4) \div -6 - -3$

12) $(-6 + 3)^2 - 5 \times -1$