Sept. 24th, 2014

Mini Lesson #3

Nov. 24, 2020

Oct. 29th, 2018

For Tasks #2 and 3

(others may listen if you find it helpful to you!)

- Order of Operations

$$\frac{(2 \times 5) - 3}{4 + (3 \times 5)} = \frac{7}{19} = 0.36$$

Section 3.6 Order of Operations with Rational Numbers

B Do the operations in brackets first
E Next, evaluate any exponents
D, M } Then, divide and multiply in order from left to right
A, S } Finally, add and subtract in order from left to right

Order of Operations with Decimals

Example # 1 **(- 2.4) ÷ 1.2** – 7 × 0.2

$-2 - 1.4$
$-2 + (-1.4)$
$= -3.4$

Divide First
Then, multiply
To subtract, add the opposite

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

Example # 2 **(-3.4 + 0.6)** + 4^2 × 0.2

$-2.8 + 4^2 \times 0.2$
$-2.8 + 16 \times 0.2$
$-2.8 + 3.2$
$= 0.4$

Brackets first

Evaluate the squared term

Than multiply

Order of Operations with Fractions

Example # 1 $\left(\frac{3}{4}-\frac{7}{8}\right)\div\left(-\frac{5}{16}\right)$

Subtract in the brackets first

Use a common denominator of 8

$\left(\frac{6}{8}-\frac{7}{8}\right)\div\left(-\frac{5}{16}\right)$

$\left(-\frac{1}{8}\right)\div\left(-\frac{5}{16}\right)$

To divide, multiply by the reciprocal

$\left(-\frac{1}{8}\right)\times\left(-\frac{16}{5}\right)$

Look for common factors

$\left(-\frac{1}{\cancel{8}_{1}}\right)\times\left(-\frac{\cancel{16}^{2}}{5}\right)$

Both factors are negative, so the product is positive.

$=\frac{2}{5}$

Example #2 $\left(-\frac{2}{3}\right) \times \frac{1}{6} + \frac{1}{2}$

$\left(-\frac{1}{3}\right) \times \frac{1}{3} + \frac{1}{2}$

$-\frac{1}{9} + \frac{1}{2}$

$-\frac{1 \times 2}{9 \times 2} + \frac{1}{2} \times 9$

$-\frac{2}{18} + \frac{9}{18}$

$= \frac{7}{18}$

9: 9, (18), 27

2: 2, 4, 6, 8, 10, 12, 14, 16, (18)

Multiply First

Look for common factors

Add

Use a common denominator

Example # 3 $\left(2\frac{1}{3}\right)+\left(1\frac{1}{4}\right)\times\left(-\frac{2}{3}\right)$ Convert mixed numbers to improper fractions

$\left(\frac{7}{3}\right)+\left(\frac{5}{4}\right)\times\left(-\frac{2}{3}\right)$

$\left(\frac{7}{3}\right)+\left(\frac{-5}{6}\right)$

$\frac{14}{6}+\left(\frac{-5}{6}\right)$

$=\frac{9}{6}$

$=\frac{3}{2}$

A student's solution to a problem, to the nearest hundredth, is shown below. The solution is incorrect. Identify the errors. Provide a correct solution

$(-8.2)^2 \div (-0.2) - 2.9 \times (-5.7)$

$= 67.24 \div (-0.2) - 2.9 \times (-5.7)$
$= 67.24 \div (-0.2) - 16.53$
$= 67.24 \div (16.73)$
~ 4.02

Error Questions

1. A student's solution to a problem, to the nearest hundredth, is shown below. The solution is incorrect. Identify the errors. Provide a correct solution.

$(-8.2)^2 \div (-0.2) - 2.9 \times (-5.7)$

$= 67.24 \div (-0.2) - 2.9 \times (-5.7)$
$= 67.24 \div (-0.2) - 16.53$
$= 67.24 \div (16.73)$
~ 4.02

Answer: $(-8.2)^2 \div (-0.2) - 2.9 \times (-5.7)$

$67.24 \div (-0.2) - 2.9 \times (-5.7)$

$-336.2 - 2.9 \times (-5.7)$

$-336.2 - 16.53$

-352.73

End of mini lesson #3