1.4 Order of Operations

Math 9 1.4 Order of Operations with Rational Numbers Name: _____

Solve each of these skill testing questions ☺

$2 + 8 \times (5 - 2^2) \div 2 - 6$

$5 - 4$

$= 2 + 8 \times 1 \div 2 - 6$

$= 2 + 8 \div 2 - 6$

$= 2 + 4 - 6$

$= 0$

$\sqrt{9} = (9)^{1/2}$

$\left[1\frac{1}{2} + \left(\frac{3}{4} - \frac{1}{2}\right) - \sqrt{\frac{1}{4}}\right] \times 4$

$\frac{3}{4} - \frac{2}{4}$

$= \left[1\frac{1}{2} + \frac{1}{4} - \frac{1}{2}\right] \times 4$

$= \left[1\frac{2}{4} + \frac{1}{4} - \frac{2}{4}\right] \times 4$

$= 1\frac{1}{4} \times 4$

$= \frac{5}{4} \times 4$

$= 5$

$15 \div (-2.5) + \sqrt{6.25} - 3^2$

$= 15 \div (-2.5) + 2.5 - 9$

$= -6 + 2.5 - 9$

$= -12.5$

$-0.7 + [2.2(1.58 - 3.12)] + \sqrt{12.5 + (-3.5)}$

$= -0.7 + [2.2(-1.54)] + \sqrt{9}$

$= -0.7 + -3.388 + 3$

$= -1.088$

$12 \div 4 \times \sqrt{\frac{3}{4} + 1\frac{1}{2}} + \left(\frac{7}{8} - \frac{1}{16}\right) - 1\frac{1}{8}$

$= 12 \div 4 \times \sqrt{\frac{3}{4} + \frac{3}{2}} + \left(\frac{14}{16} - \frac{1}{16}\right) - \frac{9}{8}$

$= 12 \div 4 \times \sqrt{\frac{3}{4} + \frac{6}{4}} + \frac{13}{16} - \frac{18}{16}$

$= 12 \div 4 \times \sqrt{\frac{9}{4}} + \frac{13}{16} - \frac{18}{16}$

$= 12 \div 4 \times \frac{3}{2} + \frac{13}{16} - \frac{18}{16}$

$= 3 \times \frac{3}{2} + \frac{13}{16} - \frac{18}{16}$

$= \frac{9}{2} + \frac{13}{16} - \frac{18}{16}$

$= \frac{72}{16} + \frac{13}{16} - \frac{18}{16}$

$= \frac{67}{16}$ or $4\frac{3}{16}$

Math 9 1.4 Order of Operations with Rational Numbers Name: _____

Practise:

1. Solve.

a) $10\left[\left(\frac{1}{2}+\frac{1}{4}\right)+2\left(\frac{1}{8}\right)\right]\div 2$

c) $\sqrt{(0.6^2)+(0.8^2)}$

b) $\left(\frac{1}{5}-\frac{3}{5}\right)\times\sqrt{6\times\frac{2}{3}}+\left(\sqrt{36}\div\sqrt{5^2}\right)$

d) $\left[-1.5+\sqrt{0.25}-(-0.75)\right]\times 2^4$

2. Ben works at a local coffee shop. On New Year's Day, Ben was paid time and a half. This means that he was paid $1\frac{1}{2}$ times his regular \$15/h pay rate. He worked from 7:00 am to 2:30 pm. How much did Ben earn?

3. Nicki decides to bake three different desserts. The recipes call for $2\frac{1}{2}$ cups, $\frac{3}{4}$ of a cup, and 3 cups of flour, respectively.

a) How much flour does Nicki need to make the three desserts?

b) If she tripled the recipe that calls for $\frac{3}{4}$ of a cup, what is the total amount of flour needed for the three dessert?