MTH 60 group work
Thursday, 1/7/2015

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Work the following problems paying careful attention to formatting. Always start by writing the original problem to the left of the first equal sign. Simplifications belong to the right of the equal signs. If you have more than one simplification step, remember to line up your equal signs. One person from each group will hand in the work. Compare your answers and decide who will turn in this assignment for the group. Make sure each group member's name is on the sheet to be turned in! You must work as a group to earn credit. No individual submissions.

1. Express $-\frac{3}{20}$ as a decimal.

$-\frac{3}{20} = -0.15$

$$\begin{array}{r} 0.15 \\ 20\overline{)3.00} \\ 20 \\ \hline 100 \end{array}$$

2. Express $\frac{5}{11}$ as a decimal.

$\frac{5}{11} = 0.\overline{45}$

$$\begin{array}{r} 0.\overline{45} \\ 11\overline{)5.000} \\ 44 \\ \hline 60 \\ 55 \\ \hline 50 \end{array}$$

3. Consider the following set of numbers: $\left\{-2\frac{1}{5}, -\sqrt{3}, -1, 0, 1.\overline{5}, \sqrt{9}, \pi, \frac{11}{2}\right\}$

List the numbers in the set that are

a. natural numbers 1, $\sqrt{9}$

b. whole numbers 0, $\sqrt{9}$

c. integers -1, 0, $\sqrt{9}$

d. rational numbers $-2\frac{1}{5}$, -1, 0, $1.\overline{5}$, $\sqrt{9}$, $\frac{1}{2}$

e. irrational numbers $-\sqrt{3}$, π

f. real numbers all of the numbers in the set

4. Find each absolute value.

a. $\left|\frac{2}{7}\right| = \frac{2}{7}$

b. $\left|-\sqrt{13}\right| = \sqrt{13}$

c. $\left|-\frac{1}{3}\right| = \frac{1}{3}$

5. Insert either $<$, $>$, or $=$ to make a true statement.

a. $-\frac{5}{2} < -\frac{5}{3}$

b. $|-20| < |-50|$

c. $|-2| > \frac{4}{17} \div \frac{4}{17}$

d. $\frac{17}{18} \cdot \frac{18}{17} > \frac{50}{60} - \frac{5}{6}$

6. Consider the algebraic expression $8y+3+9x$.

a. How many terms are in the expression.

3

b. What is the numerical coefficient of the first term?

8

c. What is the constant term?

3

d. Does the algebraic expression contain like terms? If so, what are the like terms?

NO

7. Simplify $9+(3+f)$. Remember to start with the given expression and line up your equal signs if you have more than one simplification step.

$9+(3+f) = (9+3)+f$

$= 12+f$

8. Simplify $8(3v)$. Remember to start with the given expression and line up your equal signs if you have more than one simplification step.

$8(3v) = (8\cdot 3)v$

$= 24v$

9. Simplify $4(m+3)$. Remember to start with the given expression and line up your equal signs if you have more than one simplification step.

$4(m+3) = 4\cdot m + 4\cdot 3$

$= 4m+12$

10. Simplify $\frac{1}{3}(7x-21)$. Remember to start with the given expression and line up your equal signs if you have more than one simplification step.

$\frac{1}{3}(7x-21) = \frac{1}{3}\cdot 7x - \frac{1}{3}\cdot 21$

$= \frac{7}{3}x - 7$

11. Simplify $6w+11w$. Remember to start with the given expression and line up your equal signs if you have more than one simplification step.

$6w+11w = 17w$

12. Simplify $4+(g+13)$. Remember to start with the given expression and line up your equal signs if you have more than one simplification step.

$4+(g+13) = (4+13)+g$

$= 17+g$

13. Simplify $7d+8-3d+2$. Remember to start with the given expression and line up your equal signs if you have more than one simplification step.

$7d+8-3d+2 = 7d-3d+8+2$

$= 4d+10$

14. Simplify $14+2(5x-1)$. Remember to start with the given expression and line up your equal signs if you have more than one simplification step.

$$14+2(5x-1) = 14+2\cdot 5x-2\cdot 1$$
$$= 14+10x-2$$
$$= 10x+14-2$$
$$= 10x+12$$

15. Simplify $2(5q+4)-3$. Remember to start with the given expression and line up your equal signs if you have more than one simplification step.

$$2(5q+4)-3 = 2\cdot 5q+2\cdot 4-3$$
$$= 10q+8-3$$
$$= 10q+5$$

Write each English phrase as an algebraic expression and then simplify the expression. Remember to start by defining your variable. Use variables other than x.

16. the sum of 8 times a number and twice the number

Let a represent the number.

$8a + 2a = 10a$

17. the product of 5 and a number, which is then subtracted from the product of 11 and the number

Let b represent the number.

$11b - 5b = 6b$

18. nine times the product of 3 and a number

Let c represent the number.

$9 \cdot 3n = 27n$

19. nine times the sum of 3 and a number

Let d represent the number.

$9(3+n) = 9 \cdot 3 + 9 \cdot n$

$= 27 + 9n$