Activity #1 (Intro to Algebra) Name:_____KEY_____
Math 60

1. For each of the following fractions find the simplest form.

a. $\frac{5}{25} = \frac{5(1)}{5(5)} = \boxed{\frac{1}{5}}$ b. $\frac{18}{54} = \frac{1(18)}{3(18)} = \boxed{\frac{1}{3}}$ c. $\frac{62}{93} = \frac{2(31)}{3(31)} = \boxed{\frac{2}{3}}$

2. Compute and write in simplest form (no decimals).

a. $\frac{10}{3} \times \frac{21}{20} = \frac{1(10)}{1(3)} \times \frac{7(3)}{2(10)} = \boxed{\frac{7}{2} \text{ or } 3\frac{1}{2}}$

b. $\frac{22}{3} \div \frac{55}{24} = \frac{22}{3} \cdot \frac{24}{55} = \frac{2(11)}{1(3)} \cdot \frac{8(3)}{5(11)} = \boxed{\frac{16}{5} \text{ or } 3\frac{1}{5}}$

c. $\frac{10}{3} + \frac{3}{7} = \frac{(7)10}{(7)3} + \frac{(3)3}{(3)7} = \frac{70+9}{21} = \boxed{\frac{79}{21} \text{ or } 3\frac{16}{21}}$

d. $\frac{5}{12} - \frac{1}{15} = \frac{(5)5}{(5)12} - \frac{(4)1}{(4)15} = \frac{25-4}{60} = \frac{21}{60} = \boxed{\frac{7}{20}}$

3. Simplify the following.

a. $\frac{24}{-8} = \boxed{-3}$ b. $\frac{-63}{-7} = \boxed{9}$ c. $\frac{22}{0} = \boxed{\text{undefined}}$ d. $\frac{0}{3} = \boxed{0}$

4. Use exponential notation to rewrite the expression.

a. $(-10)(-10)(-10) = \boxed{(-10)^3}$ b. $(10)(10)(10)(10) = \boxed{(10)^4}$

5. Write each expression in expanded form **and** then evaluate.

a. $2^4 = (2)(2)(2)(2) = \boxed{16}$ b. $-2^4 = -(2)(2)(2)(2) = \boxed{-16}$

c. $(2)^4 = (2)(2)(2)(2) = \boxed{16}$ d. $(-2)^4 = (-2)(-2)(-2)(-2) = \boxed{16}$

e. $(2)^3 = (2)(2)(2) = \boxed{8}$ f. $(-2)^3 = (-2)(-2)(-2) = \boxed{-8}$

6. Use the Order of Operations to simplify. Show all work. No decimals.

a. $-9+17 = \boxed{8}$

b. $-\frac{9}{4} - \frac{5}{6} = -\frac{(3)9}{(3)4} - \frac{(2)5}{(2)6}$

$= \frac{-27-10}{12} = \boxed{\frac{-37}{12} \text{ or } -3\frac{1}{12}}$

c. $-17-4-(-3)+8-2$

$= -21+3+8-2$

$= \boxed{-12}$

d. $\frac{1}{2}(43-11-(-2)) + 14 \div 7$

$= \frac{1}{2}(34) + 14 \div 7$

$= 17 + 14 \div 7$

$= 17 + 2 = \boxed{19}$

e. $\frac{5}{2} + \left(-\frac{4}{3}\right) \div \frac{24}{5}$

$= \frac{5}{2} + \left(-\frac{4}{3}\right) \cdot \frac{5}{24}$

$= \frac{5}{2} + \left(-\frac{5}{18}\right)$

$= \frac{5(9)}{2(9)} + \left(-\frac{5}{18}\right)$

$= \frac{45-5}{18} = \frac{40}{18} = \boxed{\frac{20}{9} \text{ or } 2\frac{2}{9}}$

f. $\left(-\frac{4}{27}\right)\left(-\frac{18}{15}\right) - \frac{1}{3}$

$= \left(\frac{4}{3(9)}\right)\left(\frac{2(9)}{15}\right) - \frac{1}{3}$

$= \frac{8}{45} - \frac{1}{3}$

$= \frac{8}{45} - \frac{1(15)}{3(15)} = \frac{8-15}{45} = \boxed{\frac{-7}{45}}$

7. Simplify.

a. $\frac{4^5}{4^7} = \frac{1}{4^2} = \boxed{\frac{1}{16}}$

b. $\frac{(-5)^2}{-5^2} = \frac{25}{-25} = \boxed{-1}$

c. $3(2+2)^3 - 42$

$= 3(4)^3 - 42$

$= 3(64) - 42$

$= 192 - 42 = \boxed{150}$

d. $\left[-2-7+(5-12)^2\right] \div 5 - 2$

$= \left[-2-7+(-7)^2\right] \div 5 - 2$

$= [-9 + 49] \div 5 - 2$

$= [40] \div 5 - 2$

$= 8 - 2$

$= \boxed{6}$

8. An **Expression** is a meaningful collection of numbers, variables and operation .

   Identify whether the following is an expression or not.

   a. $25 - \div 5$ No b. $25 \div (-5)$ Yes c. $3x + 6 = 12$ No

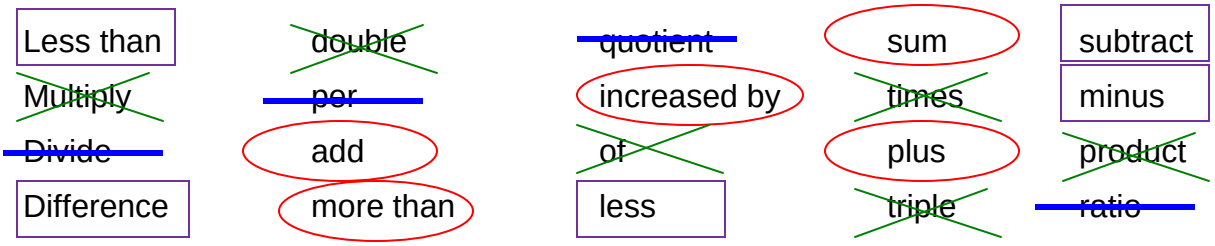
9. Below is a list of words.

   Circle the words that relate to the mathematical operation "+".

   Box the words that relate to the mathematical operation "–".

   Cross out the words that relate to the mathematical operation "×".

   Draw a line through the words that relate to the mathematical operation "÷".



10. Rewrite the following word expressions into an algebraic expression.

Word Expression	Algebraic Expression
The sum of the lengths of three sides of a triangle divided by 2.	$\frac{a+b+c}{2}$
Eighty more dollars than triple the cost of a chair.	$80 + 3x$
Fifteen dollars less than the original price.	$x - 15$
The sum of a number and 7.	$x + 7$
The quotient when 3 less than some number is divided by 3 more than some other number.	$\frac{x-3}{3+y}$
The sum of two consecutive integers.	$x + (x+1)$ OR $2x+1$
If x feet are cut off from a board that is 23 ft long, express how much of the board is left.	$23 - x$