

# Key for HW9-10-11.doc

You should be able to do these problems on your own. I will not collect this assignment, but you should make sure that you get the correct answers when I pass post the answer key on Wednesday.

Example: Multiply or Divide the following.

a)  $-\frac{3}{4} \cdot -\frac{8}{9}$

$-\circ - = +$   
 $\frac{3}{4} \cdot \frac{8}{9} = \frac{2}{3}$

b)  $-\frac{4}{9} \div \frac{4}{9}$

$-\div + = -$   
 $\frac{4}{9} \cdot \frac{9}{4} = 1$  so  $-1$   
 Any # times its reciprocal is 1

c)  $0(-3.5)$

$= 0$

\* Any # times zero is zero.

Example: Simplify using strict order of operations. All fractions must be in lowest terms and/or reduced mixed # if improper.

a)  $\frac{8 + (-4)^2 - 4 \cdot 4}{4 - 12} = \frac{8 + 16 - 16}{-8} = \frac{8}{-8} = -1$

b)  $\frac{-3 - 2(-9)}{-15 - 3(-4)} = \frac{-3 + 18}{-15 + 12} = \frac{15}{-3} = -5$

$= -\frac{5}{1} = -5$   
 The neg. isn't involved in changing to a mixed # !!!

c)  $\frac{-3 - (-3)}{-5 - 4} = \frac{-3 + 3}{-9} = \frac{0}{-9} = 0$   
 \* zero divided by anything is zero  $0 \div a, a \neq 0$  or  $\frac{0}{a}$

d)  $\frac{|(9)(-1) + -11|}{-5 + -2^2 + |-9|} = \frac{|-9 - 11|}{-5 - 4 + 9} = \frac{|-20|}{0} = \frac{20}{0} = \text{undefined}$   
 \*\* Don't take absolute value of things inside until you have 1 # !!

Recall that division by zero is undefined, because there is no reciprocal of zero!

Example: a)  $-\frac{2}{7} \div 0$

$= \text{undefined}$

b)  $0 \div -7.8$

undefined

c)  $-\frac{27}{0} = \text{undefined}$

Example: What number when multiplied by  $-7\frac{1}{8}$  will yield 1?

$-7\frac{1}{8} = -\frac{57}{8} \Rightarrow \frac{-8}{57}$

Example: What is the reciprocal of  $-\frac{22}{3}$ ?

$\frac{-3}{22}$

Example: What is the multiplicative inverse of 0?

Does not exist

\* When changing a mixed #, that is negative, to an improper fraction, ignore the sign (just carry it along). The sign doesn't effect the addition portion of changing a mixed #  $\rightarrow$  improper fraction  
 \*\* The reciprocal of a negative # is a negative # b/c a neg x neg is a positive & identity element is positive 1!!