

Thursday, September 7  
Study Guide

1. See note about properties (September 5<sup>th</sup>)

2. a. False! (Non-negative!)

b. True

c. True

d. False! (Irrational #'s are real, too!)

e. True

f. True

3. a.  $2^2 + 5 - 12(-3)^2$

$$4 + 5 - 12(9)$$

$$4 + 5 - 108$$

$$9 - 108$$

$$\textcircled{-99}$$

b.  $[(3 \cdot 7) + 1] \div (18 - 16)$

$$[21 + 1] \div (18 - 16)$$

$$[22] \div (2)$$

$$\textcircled{11}$$

4. a.  $\frac{15 \div 3 + 2 \cdot 3}{2(5+6)} = \frac{5+6}{2(11)} = \frac{11}{22} = \textcircled{\frac{1}{2}}$

b.  $2 \cdot 3^2 \div 3$

$$2 \cdot 9 \div 3$$

$$18 \div 3$$

$$\textcircled{6}$$

c.  $\frac{(2 \cdot 5)^2 + 4}{3^2 - 5} = \frac{10^2 + 4}{9 - 5} = \frac{100 + 4}{4} = \frac{104}{4} = \textcircled{26}$

d.  $\frac{2a+b}{3}$  for  $a=4, b=1$

$$\frac{2(4)+1}{3} = \frac{8+1}{3} = \frac{9}{3} = \textcircled{3}$$



5. a.  $-7 + (-8) = -7 - 8 = -15$

b.  $15 + (-11) = 15 - 11 = 4$

c.  $17 + (-9) + 10 + (-6) = 17 - 9 + 10 - 6 = 8 + 10 - 6 = 18 - 6 = 12$

d.  $(-3)(x)(7) = (-3)(7)(x) = -21x$

e.  $(-2x)(-4)(x) = 8x(x) = 8x^2$

f.  $(-3x)^2 = 9x^2$

g.  $\frac{2}{3} \div \frac{1}{5} = \frac{2}{3} \cdot \frac{5}{1} = \frac{10}{3}$

h.  $\frac{16}{\frac{4}{3}} = 16 \div \frac{4}{3} = \frac{16}{1} \cdot \frac{3}{4} = \frac{4}{1} \cdot \frac{3}{1} = \frac{12}{1} = 12$

i.  $\frac{x^2}{5} \div -4 = \frac{x^2}{5} \div \frac{-4}{1} = \frac{x^2}{5} \cdot \frac{-1}{4} = \frac{-x^2}{20}$

6. a.  $\frac{3x^2 - 4 + 4x^2}{7x^2 - 4}$

b.  $\frac{(6x-1)(-4x)}{-24x^2 + 4x}$

c.  $10x + (3x+2)(-2)$

$10x + (-6x-4)$

$10x - 6x - 4$

$4x - 4$

d.  $x^2 - (x+x^2)$

$x^2 - x - x^2$

$-x$

e.  $2x(3-x) + x^2$

$6x - 2x^2 + x^2$

$6x - x^2$

7. Full Credit must:

- ① Be in complete sentences
- ② Talk about grouping symbols  $()$ ,  $[\ ]$ ,  $\{ \}$ ,  $\_$
- ③ say  $\times$  and  $\div$  from left to right
- ④ say  $+$  and  $-$  from left to right



8. a.  $-\frac{3}{4} \rightarrow$  real, rational  
b.  $\pi \rightarrow$  real, irrational  
c.  $5 \rightarrow$  real, rational, integer, whole, natural  
d.  $\sqrt{7} \rightarrow$  real, irrational

9. a.  $9x^2 - 5$

b.  $\frac{n}{5}$