Test 1 Prep Group work - **Key**

1. a. $2-(x-5)=2-x+5$
$=-x+7$

b. $-2+3(y-7)+4y=-2+3y-21+4y$
$=7y-23$

c. $8d-[6-(-2d-6)]=8d-[6+2d+6]$
$=8d-[2d+12]$
$=8d-2d-12$
$=6d-12$

d. $0.1(80x^2-90x)-(14x-6x^2)=8x^2-9x-14x+6x^2$
$=14x^2-23x$

2. When $x=-7$

$$\frac{8-x}{x-8}+3(x^2-x)=\frac{8-(-7)}{-7-8}+3\left[(-7)^2-(-7)\right]$$
$$=\frac{15}{-15}+3[49+7]$$
$$=-1+3(56)$$
$$=167$$

3. When $t=-31$, does $-4t-122=\frac{3t(t+33)}{t+30}$?

$$-4(-31)-122=\frac{3(-31)(-31+33)}{-31+30}\,?$$
$$124-122=\frac{-93(2)}{-1}\,?$$
$$2=186\,?$$ ⟨I think not.⟩

-31 is most definitely not a solution to the equation.

4. When $x=2$, $x^2=4$, $-x^2=-4$, and $(-x)^2=4$.

5. When $x=-2$, $x^2=4$, $-x^2=-4$, and $(-x)^2=4$. **Déjà vu!**

6. $$\frac{(-32)(12)(-75)(-52)(51)}{(16)(-12)(-15)(-26)(-17)} = \frac{-32}{16}\cdot\frac{12}{-12}\cdot\frac{-75}{-15}\cdot\frac{-52}{-26}\cdot\frac{51}{-17}$$
$$= (-2)(-1)(5)(2)(-3)$$
$$= -60$$

7. a. $-5\tfrac{2}{3} + 9 = 3\tfrac{1}{3}$

b. $8 - 8\tfrac{2}{3} = -\tfrac{2}{3}$

c. $$\left(\frac{1}{2}\right)\left(-\frac{8}{7}\right) = -\frac{(1)(8)}{(2)(7)}$$
$$= -\frac{4}{7}$$

d. $$-\frac{5}{4} \div \left(-\frac{1}{2}\right) = -\frac{5}{4}\cdot\left(-\frac{2}{1}\right)$$
$$= \frac{(5)(2)}{(4)(1)}$$
$$= \frac{5}{2}$$

e. $$-\frac{5}{4} \div 2 \times 3 = -\frac{5}{4} \div \frac{2}{1} \times 3$$
$$= -\frac{5}{4}\cdot\left(\frac{1}{2}\right) \times 3$$
$$= \frac{(5)(1)}{(4)(2)} \times \frac{3}{1}$$
$$= -\frac{15}{8}$$

f. $$-\frac{9}{14} - \frac{19}{21} = -\frac{9}{14}\cdot\frac{3}{3} - \frac{19}{21}\cdot\frac{2}{2}$$
$$= -\frac{27}{42} - \frac{38}{42}$$
$$= \frac{-27-38}{42}$$
$$= -\frac{65}{42}$$

g. $$\frac{-13}{12} - \left(-\frac{7}{8}\right) = -\frac{13}{12} + \frac{7}{8}$$
$$= -\frac{13}{12}\cdot\frac{2}{2} + \frac{7}{8}\cdot\frac{3}{3}$$
$$= -\frac{26}{24} + \frac{21}{24}$$
$$= \frac{-26+21}{24}$$
$$= -\frac{5}{24}$$

h. $$-5 + \frac{1}{2} = -\frac{10}{2} + \frac{1}{2}$$
$$= \frac{-10+1}{2}$$
$$= -\frac{9}{2}$$

8. $5x - 12 = 6 + 3x$

9. Complete each sentence with one of the words/phrases/numbers/names below. Word up …pick the one that makes the sentence true!

0	commutative property	additive inverse	numerator	difference
1	distributive property	multiplicative inverse	denominator	positive
4	associative property	additive identity	opposite	Sara Palin
87	order of operations	multiplicative identity	dingo	negative

a. If you multiply 87 with its multiplicative inverse the result is 1.

b. $3(4+7)=3\cdot 4+3\cdot 7$ is an example of the distributive propety.

c. -2^2 is negative.

d. When reading aloud $-(-6)$, the first minus sign is read as opposite and the

second minus sign is read as negative.

e. $6\cdot 9+8\cdot 7=8\cdot 7+6\cdot 9$ is an example of the commutative property (of addition).

f. One former governor of Alaska is called Sara Palin.

g. $12+7+9=19+9$ is an example of order of operations.

h. If the opposite of $|x|$ is not zero, then it is definitely negative.

i. A word that rhymes with bingo is dingo.

j $8+5+(-5)=8+0$ is an unconscious application of the associative property (of addition).