

Eq. + Ineq. Test Review 2015

$$1) 8 \left(\frac{2x-9}{8} \right) = (8-3x)^3$$

$$2x-9 = 24-9x$$

$$+9x \qquad +9x$$

$$11x-9 = 24$$

$$+9 \quad +9$$

$$11x = 33$$

$$\boxed{x=3}$$

$$2) \frac{1}{2}(6x-4) = 4x-9$$

$$3x-2 = 4x-9$$

$$-3x \quad -3x$$

$$-2 = x-9$$

$$+9 \quad +9$$

$$7 = x$$

$$\boxed{x=7}$$

$$3) \left(\frac{3}{4}m - \frac{m}{8} \right) = \left(\frac{1}{2}m + 6 \right)$$

$$6m - m = -4m + 48$$

$$5m = -4m + 48$$

$$+4m \quad +4m$$

$$9m = 48$$

$$\boxed{m = \frac{16}{3}}$$

$$4) 3(y-4) - 10 = -(9-5y) + 3$$

$$3y - 12 - 10 = -9 + 5y + 3$$

$$3y - 22 = 5y - 6$$

$$-3y \quad -3y$$

$$-22 = 2y - 6$$

$$+6 \quad +6$$

$$-16 = 2y$$

$$\boxed{y = -8}$$

$$5) 7n - 2(n+5) < 3n - 16$$

$$7n - 2n - 10 < 3n - 16$$

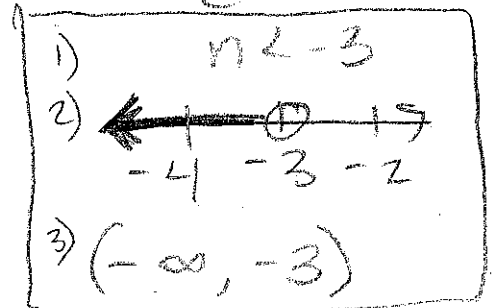
$$5n - 10 < 3n - 16$$

$$-3n \quad -3n$$

$$2n - 10 < -16$$

$$+10 \quad +10$$

$$\frac{2n}{2} < \frac{-6}{2}$$



$$6) 4n + 9 \leq 3(2n + 1)$$

$$4n + 9 \leq 6n + 3$$

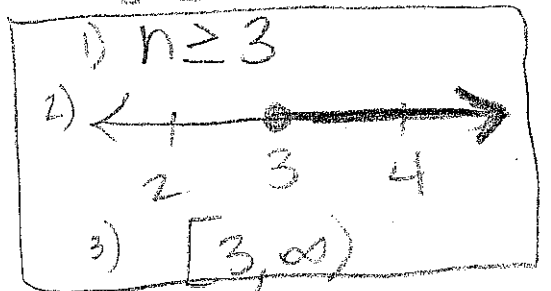
$$-4n \quad -4n$$

$$9 \leq 2n + 3$$

$$-3 \quad -3$$

$$\frac{6}{2} \leq \frac{2n}{2}$$

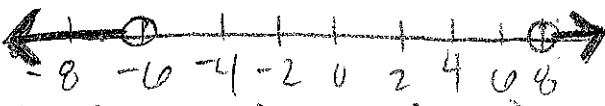
$$3 \leq n$$



$$7) \quad m-2 < -8 \quad \text{or} \quad \frac{m}{3} > 118$$

+2 +2

1) $m < -6$ or $m > 8$

2) 

3) $(-\infty, -6)$ or $(8, \infty)$


$$8) \quad 8x+8 \geq -64 \quad \text{and} \quad -7-8x \geq -79$$

-8 -8 +7 +7

$$\frac{8x}{8} \geq \frac{-72}{8} \qquad \frac{-8x}{-8} \geq \frac{-72}{-8}$$

$x \geq -9$ $x \leq 9$

1) $-9 \leq x \leq 9$

2) 

3) $[-9, 9]$

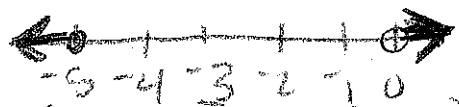
$$9) \quad -1-10a < -1 \quad \text{or} \quad 10+3a \leq -5$$

+1 +1 -10 -10

$$\frac{-10a}{-10} < \frac{-10}{-10} \qquad \frac{3a}{3} \leq \frac{-15}{3}$$

$a > 0$ $a \leq -5$

1) $a > 0$ or $a \leq -5$

2) 

3) $(-\infty, -5)$ or $(0, \infty)$

$$10) \quad 2p-2 \leq 4p-8 \leq 3p-3$$

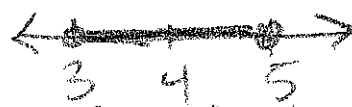
$$2p-2 \leq 4p-8 \qquad 4p-8 \leq 3p-3$$

-2 ≤ 2p-8 p-8 ≤ -3

6 ≤ 2p p ≤ 5

3 ≤ p

1) $3 \leq p \leq 5$

2) 

3) $[3, 5]$

11) $h = \text{hours}$

$$1500 + 125\left(\frac{1}{2}h - 3\right) \leq 2125$$

$$1500 + 0.25h - 375 \leq 2125$$

$$0.25h + 1125 \leq 2125$$

$$-1125 \quad -1125$$

$$\underline{0.25h} \leq \underline{1000}$$

$$\underline{0.25} \quad \underline{42.5}$$

$$h \leq 16$$

They can rent the ballroom for no more than 16 hours.

12) $x = 1^{\text{st}} \#$

$$x + 2 = 2^{\text{nd}} \#$$

$$x + 4 = 3^{\text{rd}} \#$$

$$x + 2 + x + 4 = 4x$$

$$2x + 6 = 4x$$

$$-2x \quad -2x$$

$$\underline{6} = \underline{2x}$$

$$\underline{2} \quad \underline{2}$$

$$3 = x$$

The numbers are 3, 5, and 7.

13) $m = \text{miles}$

$$19.95 + .99m + 05.32 = 144.67$$

$$.99m + 85.27 = 144.67$$

$$-85.27 \quad -85.27$$

$$\underline{.99m} = \underline{59.40}$$

$$\underline{.99} \quad \underline{.99}$$

$$m = 60$$

He drove for 100 miles

14) $x = \text{toppings}$

$$7.50 + 1.25x \leq 13$$

$$-7.50$$

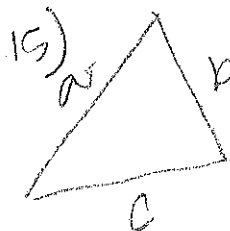
$$-7.50$$

$$\underline{1.25x} \leq \underline{5.50}$$

$$\underline{1.25} \quad \underline{1.25}$$

$$x \leq 4.40$$

Nicholas can only order 4 toppings.



$$a \rightarrow b + 4$$

$$c \rightarrow 2b$$

$$a = b + 4$$

$$a + b + c = 28$$

$$c = 2b$$

$$b + 4 + b + 2b = 28$$

$$4b + 4 = 28$$

$$-4 \quad -4$$

$$\underline{4b} = \underline{24}$$

$$\underline{4} \quad \underline{4}$$

$$b = 6$$

$$a = 10$$

$$c = 12$$

$$6 + 10 + 12 =$$

$$28 \checkmark$$

The lengths are 6cm, 10cm, and 12cm.