Unit 2A Quiz Review

Date_____ Period____

Solve each equation and justify your solution with properties of equalities.

1) $15 = 1 - 3n + 5n$

$15 = 1 + 2n$ Combine Like Terms

$14 = 2n$ Sub POE

$\boxed{7 = n}$ Div POE

2) $n - 2n = 8$

$-n = 8$ combine like terms

$\boxed{n = -8}$ Div POE

3) $-8(b + 6) + 4 = -92$

$-8b - 48 + 4 = -92$ Distribute

$-8b - 44 = -92$ combine like Terms

$-8b = -48$ Add POE

$\boxed{b = 6}$ Div POE

4) $-3(7n - 1) = 171$

$-21n + 3 = 171$ Distribute

$-21n = 168$ Sub POE

$\boxed{n = 8}$ Div POE

5) $20 + 8m = 3(6 + 3m)$

$20 + 8m = 18 + 9m$ Distributive

$20 = 18 + m$ Sub POE

$\boxed{2 = m}$ Sub POE

6) $5v - 4 = -6(v + 8)$

$5v - 4 = -6v - 48$ Distributive

$11v - 4 = -48$ Add POE

$11v = -44$ Add POE

$\boxed{v = -4}$ Sub POE

Solve each inequality.

7) $-87 < 3(-5 + 4v)$

$-87 < -15 + 12v$

$-72 < 12v$

$-6 < v$

$\boxed{v > -6}$

8) $2 + 8(2 - 4x) \le -238$

$2 + 16 - 32x \le -238$

$18 - 32x \le -238$

$-32x \le -256$

$\boxed{x \ge 8}$ * Divide by Negative, SWITCH SIGN

9) $-21 \le -k - 6k$

$-21 \le -7k$

$3 \ge k$

$\boxed{k \le 3}$

10) $0 > -7k + 5k$

$0 > -2k$

$0 < k$

$\boxed{k > 0}$

11) $-7x - 2 \le -4 - 8x$

$x - 2 \le -4$

$\boxed{x \le -2}$

12) $3 - 5x < 6 - 4x$

$3 < 6 + x$

$-3 < x$

$\boxed{x > -3}$

Solve each equation for the indicated variable.

13) $z = x - m$, for x

$z + m = x$

14) $g = x + c$, for x

$g - c = x$

15) $z = \dfrac{-4 - 8a}{b}$, for a

$zb = -4 - 8a$

$zb + 4 = -8a$

$\dfrac{zb + 4}{-8} = a$ OR $\dfrac{zb}{-8} - \dfrac{1}{2} = a$

16) $-4x + 3 = -2w + v$, for x

$-4x = -2w + v - 3$

$x = \dfrac{-2w + v - 3}{-4}$

OR

$x = \dfrac{1}{2}w - \dfrac{v}{4} + \dfrac{3}{4}$

17) $ca = d + r$, for a

$a = \dfrac{d + r}{c}$

18) $xm = n + p$, for x

$x = \dfrac{n + p}{m}$

-2-

For the following word problems, create an equation that models the problem. Then solve your equation,

19) The sum of two consecutive integers is -23. What are the two integers?

$$\underline{\quad x \quad} + \underline{\quad x+1 \quad} = -23$$
$$2x + 1 = -23$$
$$2x = -24$$
$$\boxed{x = -12}$$
$$-12, -11$$

20) The sum of two consecutive (even) integers is 166. What is the largest integer?

$$\underline{\quad x \quad} + \underline{\quad x+2 \quad} = 166$$
$$2x + 2 = 166$$
$$2x = 164$$
$$\boxed{x = 82}$$
$$82, 84$$

21) The sum of three consecutive integers is 90. What are the three integers?

$$\underline{\quad x \quad} + \underline{\quad x+1 \quad} + \underline{\quad x+2 \quad} = 90$$
$$3x + 3 = 90$$
$$3x = 87$$
$$\boxed{x = 29}$$
$$29, 30, 31$$

22) The sum of two consecutive integers is 225. Find the two integers.

$$\underline{\quad x \quad} + \underline{\quad x+1 \quad} = 225$$
$$2x + 1 = 225$$
$$2x = 224$$
$$\boxed{x = 112}$$
$$112, 113$$

23) Three times a number decreased by 4 is -28. Find the number.

$$3x - 4 = -28$$
$$3x = -24$$
$$\boxed{x = -8}$$

24) The sum of double a number and 7 and 31. Find the number. 13

$$2x + 7 = 31$$
$$2x = 24$$
$$\boxed{x = 12}$$

25) The quotient of a number and 4 is -4. Find the number.

$$\frac{x}{4} = -4$$
$$\boxed{x = -16}$$

26) The length of a rectangle is 3 less than 4 times the width. The perimeter is 34. Find the length and width.

$$\underline{L = 4w - 3}$$
$$P = 2L + 2W$$
$$34 = 2(4w - 3) + 2w$$
$$34 = 8w - 6 + 2w$$
$$34 = 10w - 6$$
$$40 = 10w$$
$$\boxed{4 = w} \quad \boxed{L = 13}$$