Review for Test #2 over Sect 2.1 - 2.3

Work all the problems on a separate piece of paper showing all steps.

Solve the following:

1) $y - \frac{8}{7} = -\frac{17}{7}$

2) $6.3 - g = 4.2$

3) $3x = -21$

4) $\frac{a}{5} = -7.2$

5) $\frac{5}{6}q = -\frac{11}{30}$

6) $\frac{9}{11}r = \frac{3}{4} - \frac{2}{11}r$

Simplify the following:

7) $3.2x^2 - 6x + 5.4 - 8.1x^2 + 15x - 9$

8) $\frac{2}{15}x(-5) + \frac{1}{3}(4x) - \frac{1}{6}(5x)$

9) $0.9x - 5.2y + 6z - (1.1x - 0.8y)$

10) $-a - b - (a - 3b) - 3(2 - b)$

11) $2(-3b + 4) - 5(b - 9) - (-b + 3)$

12) $-\frac{5}{12}(3x - 4) - \frac{5}{6}(6x + 12)$

A) Determine if the following is an expression or an equation. B) If it is an expression, simplify it; if it is an equation, solve it:

13) $6 - 3(4x - 7) = -4$

14) $6 - 3(4x - 7) + 4$

15) $0.6(6x - 7) - 0.9(4x + 3)$

16) $0.6(6x - 7) = 0.9(4x + 3)$

17) $\frac{4}{9}(2y - 5) = \frac{7}{12}y + \frac{5}{6}$

18) $-\frac{4}{9}(2y - 5) + \frac{7}{12}y + \frac{5}{6}$

Solve the following:

19) $-x - 3 = 11$

20) $-\frac{4}{7}x = 28$

21) $-0.4x - 2 = -1.4$

22) $-5d + 4 + 4d = 11 - (3d + 2)$

23) $-5(-2x - 3) + 3x + 4 = -7$

24) $0.3x - (0.5x + 2) = 9.8x - 1.3(4x - 6)$

Solve the following:

25) $0.3(2x - 5) = 0.2(3x + 1)$

26) $7x - 4 = 3(4x + 3) - 5x - 13$

27) $-2.3(3x - 5) = 6.6 - (-0.3)$

28) $\frac{2}{3}F + \frac{7}{8} = \frac{1}{2} - \frac{1}{12}$

29) $6x - 3 = -11x + 4 - (-16x + 7)$

30) $\frac{2(3x-5)}{5} - 3 = \frac{4(-x+3)}{15} + \frac{2}{3}$

Identify the Property of real numbers being used:

31a) $2(3x) + 4 = (2 \bullet 3)x + 4$

31b) $4x - 4x + 9 = 9$

31c) $0.2(3x - 5) = 0.6x - 1$

31d) $\frac{2}{3}x(3) - 5 = \frac{2}{3}(3)x - 5$

31e) $3x - 5y \bullet 1 = 3x - 5y$

31f) $7w - 8y + 6w = 7w + 6w - 8y$

31g) $9x - 8t + 0 = 9x - 8t$

31h) $-\frac{2}{7}\left(-\frac{7}{2}\right) - \frac{2}{7}y = 1 - \frac{2}{7}y$

31i) $(3x + 7) - 7 = 3x + (7 - 7)$

a) Translate the following into an equation and b) solve:

32) The total of $-\frac{3}{8}$ and a number is $-\frac{5}{6}$. Find the number.

33) Negative fourteen is equal to the quotient of a number and seven. What is the number?

34) Five and thirty-seven hundredths less than a number is negative eight and six hundredths. Find the number.

35) The product of a number and negative two-thirds is equal to five twelfths.

In the problem below, the student has made an error. Use critical thinking to find and correct the error. Then finish working the problem.

36) Solve: $\frac{2}{3}x = -\frac{7}{8}$

Solution:

$\frac{2}{3}x = -\frac{7}{8}$

$3 \bullet \left(\frac{1}{3}x\right) = 3 \bullet \left(-\frac{7}{4}\right)$

$x = \frac{3}{1} \bullet \left(-\frac{7}{4}\right) = -\frac{21}{4} = -5\frac{1}{4}$

37) Solve: $-6x = 42$

Solution:

$-6x = 42$

$+6 \quad = +6$

$x = 48$

In the problem below, the student has made an error. Use critical thinking to find and correct the error. Then finish working the problem.

38) Solve: $5x + 4 = 5x - 9$

Solution:

$5x + 4 = 5x - 9$

$-5x \quad = -5x$

$x + 4 = -9$

$-4 = -4$

$x = -13$

39) Simplify: $3(2x - 5) + 4 - 5x$

Solution:

$3(2x - 5) + 4 - 5x$

$= 6x - 15 + 4 - 5x$

$= x - 11$

$+11 = +11$

$x = 11$

40) Translate the following: "Seventeen subtracted from a number is four."

Solution:

$17 - n = 4$

If a, b, and c are non-zero real numbers, use critical thinking to determine which of the statements is always true, sometimes true, or never true.

41) a) The equation $ax + 3 = bx - 5$ has one solution.

b) $x = -\frac{b}{a}$ is a solution to $ax + b = 0$.

c) The equation $ax - 8 = ax + 5$ has one solution.

d) The equation $5x + b = bx - a$ has no solution.

Without working the problem, use critical thinking to determine which answers are *unreasonable*:

42) Solve the following for x: $x + 1\# = -2\#$

a) $x = -3\#$ b) $x = -2\#$ c) $x = -1\#$ d) $x = 3\#$ e) $x = -4\#$

43) Solve the following for x: $-\frac{1\#}{2\#}x = \frac{4\#}{5\#}$

a) $x = -\frac{7}{5\#}$ b) $x = -\frac{8\#}{5\#}$ c) $x = \frac{8\#}{5\#}$ d) $x = 1.5$ e) $x = -1.5$

44) Solve the following for x: $1\#x - 4\# = 6\#$

a) $x = -2$ b) $x = -9$ c) $x = 2$ d) $x = 9$ e) $x = 0$

Answers:

1) $y = -\frac{9}{7}$ 2) $g = 2.1$ 3) $x = -7$ 4) $a = -36$ 5) $q = -\frac{11}{25}$ 6) $r = \frac{3}{4}$

7) $-4.9x^2 + 9x - 3.6$ 8) $-\frac{1}{6}x$ 9) $-0.2x - 4.4y + 6z$ 10) $-2a + 5b - 6$

11) $-10b + 50$ 12) $-\frac{25}{4}x - \frac{25}{3}$ 13a) equation 13b) $x = \frac{31}{12}$

14a) expression 14b) $-12x + 31$ 15a) expression 15b) -6.9

16a) equation 16b) No Solution 17a) equation 17b) $y = 10$ 18a) expression

18b) $-\frac{11}{36}y + \frac{55}{18}$ 19) $x = -14$ 20) $x = -49$ 21) $x = -1.5$ 22) $d = \frac{5}{2}$

23) $x = -2$ 24) $x = -\frac{49}{24}$ 25) No Solution 26) All Real Numbers

27) $x = \frac{2}{3}$ 28) $F = -\frac{11}{16}$ 29) $x = 0$ 30) $x = \frac{97}{22}$

31) a) Associative Property of Multiplication b) Inverse Property of Addition
c) Distributive Property d) Commutative Property of Multiplication
e) Identity Property of Multiplication f) Commutative Property of Addition
g) Identity Property of Addition h) Inverse Property of Multiplication
i) Associative Property of Addition

32a) $-\frac{3}{8} + n = -\frac{5}{6}$ 32b) $n = -\frac{11}{24}$ 33a) $-14 = \frac{n}{7}$ 33b) $n = -98$

34a) $n - 5.37 = -8.06$ 34b) $n = -2.69$ 35a) $-\frac{2}{3}n = \frac{5}{12}$ 35b) $n = -\frac{5}{8}$

36) $x = -1\frac{5}{16}$ 37) $x = -7$ 38) No solution 39) $x - 11$ 40) $n - 17 = 4$

41) a) Sometimes b) Always c) Never d) Sometimes

42) b, c, d 43) a, c, d 44) a, b, c, e