GSE Algebra I | Unit 1 – Relationships Among Quantities | 1.3 – CW

Name: _____ Date: _____

Solving Equations and Inequalities

Show all work for the problems below. Write your final solutions in the box. (3 points each)

1. $k + 4 = 8$

$-4 \quad -4$

$k = 4$

$k = 4$

2. $20 = 19 - n$

$n = -1$

3. $2 = -3n - 4$

$+4 \quad +4$

$\frac{6}{-3} = \frac{-3n}{-3}$

$n = -2$

4. $6 + 2x = 4x - 4$

$x = -5$

5. $22 - 2y = -6(1 + y)$

$22 - 2y = -6 - 6y$

$+6 \quad +6$

$28 - 2y = -6y$

$+2y \quad +2y$

$28 = -4y$

$\frac{28}{-4} = \frac{-4y}{-4}$

$y = -7$

6. $\frac{x}{7} = \frac{2}{4}$

$x = 3.5$

7. $\frac{1}{2}x + 3 = 7$

$-3 \quad -3$

2. $\frac{1}{2}x = 4 \cdot 2$

$\boxed{x = 8}$

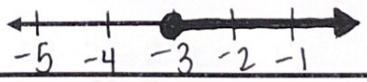
$x = 8$

8. Solve the inequality and graph the solution

$x + 7 \geq 4$

$-7 \quad -7$

$x \geq -3$



$x \geq -3$

Evaluating Algebraic Expressions

Show all work for the problems below. Write your final solutions in the box. (2 points each)

9. If $a = 2$, $b = -5$ and $c = -3$,
Evaluate $2b + a$

$2(-5) + 2$

$-10 + 2$

-8

-8

10. If $a = 2$, $b = -5$ and $c = -3$,
Evaluate $ab - c$

-7

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1. $3x+8=-16$

$-8 \quad -8$

$\frac{3x}{3}=\frac{-24}{3}$

$x=-8$

$x=-8$

2. $15-2x=4x-21$

$x=6$

3. $3x-2=4(8-x)$

$3x-2=32-4x$

$+4x \quad +4x$

$7x-2=32$

$+2 \quad +2$

$7x=34$

$x\approx 4.86$

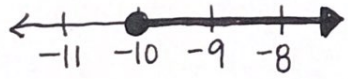
4. $\frac{x}{2}=\frac{7}{10}$

$x=1.4$

5. $r-6\geq -16$

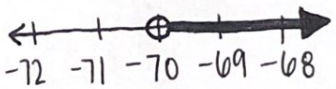
$+6 \quad +6$

$r\geq -10$



$r\geq -10$

6. $\frac{v}{7}>-10$



$v>-70$

Evaluating Algebraic Expressions

Show all work for the problems below. Write your final solutions in the box. (2 points each)

7. Simplify the expression below.

$4+8(-2n+3)$

$4-16n+24$

$-16n+28$

$-16n+28$

8. Simplify the expression below.

$5(8-2^2)\div 2$

$5(8-4)\div 2$

$5(4)\div 2$

$20\div 2$

10

9. If $a=4$, $b=-3$ and $c=-2$,

Evaluate: ab^2-2c

$4(-3)^2-2(-2)$

$4(9)-2(-2)$

$36+4$

40

10. If $a=-7$, $b=-4$ and $c=2$,

Evaluate: b^2+ac

2

Name: _____ Date: _____

Solving Equations and Inequalities

Show all work for the problems below. Write your final solutions in the box. (3 points each)

1. $8 = 4x - 6x$

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

$x = -4$

Box: $x = -4$

2. $5x + 2 = 3x + (8x + 2)$

Box: $x = 0$

3. $-5x + 3(2x + 1) = x + 3$

$-5x + 6x + 3 = x + 3$

$x + 3 = x + 3$

$0 = 0$

Box: infinite solutions

4. $\frac{8}{6} = \frac{7}{k+9}$

Box: $k = -3.75$

5. $(x + 6) - (2x + 7) - 3x = -9$

$x + 6 - 2x - 7 - 3x = -9$

$-4x - 1 = -9$

$\frac{-4x}{-4} = \frac{-8}{-4}$

Box: $x = 2$

6. $4 - 2x < 8$

Box: $x > -2$

Evaluating Algebraic Expressions

Show all work for the problems below. Write your final solutions in the box. (2 points each)

7. If $a = 2$, $b = -5$ and $c = -3$,
Evaluate: $ab^2 - 2c$

$(2)(-5)^2 - 2(-3)$

$2(25) + 6$

$50 + 6$

Box: 56

8. If $x = 3$ and $y = -4$,
Evaluate: $\frac{3xy}{2x - 4y}$

Box: $-\frac{18}{11}$ or -1.64

9. $(6 + 3)^2 + (9 - 10 \div 5)$

$9^2 + (9 - 2)$

$81 + 7$

Box: 88

10. $24 \div 4 + 14 \times 2$

Box: 34

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Solving Equations and Inequalities

Show all work for the problems below. Write your final solutions in the box. (3 points each)

1. $-21-2b=-3(2b-1)$

$-21-2b=-6b+3$

$+6b \quad +6b$

$-21+4b=3$

$+21 \quad +21$

$4b=24$

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

$b=6$

Box: $b=6$

2. $4x+2\left[4-2(x+2)\right]=2x-4$

Box: $x=3$

3. $\frac{1}{3}(6m+3)+\frac{1}{4}(12m+8)=\frac{1}{2}(8m-2)$

$2m+1+3m+2=4m-1$

$5m+3=4m-1$

$m=-4$

Box: $m=-4$

4. $22-2a \geq -6a+6$

Box: $a>-4$

5. If $2x+13=17$, find the value of $3x+1$.

$-13 \quad -13$

$2x=4$

$\frac{2x}{2}=\frac{4}{2}$

$x=2$

$3(2)+1=7$

$x=2$

Box: 7

6. Write an equation and then solve: The sum of two times a number and 5 is 11.

$2x+5=11$

Box: $x=3$

Evaluating Algebraic Expressions

Find the value for each variable expression when a = -4 and b = 2 (2 points each)

7. $x=3ab-4b^2$

$x=3(-4)(2)-4(2)^2$

$=-24-16$

$=-40$

Box: -40

8. $y=4a^3-3b^2$

Box: -268

9. $V=\frac{6ab}{a^2-b^2}=\frac{6(-4)(2)}{(-4)^2-(2)^2}=\frac{-48}{12}$

Box: -4

10. $V=\frac{7ab}{2a+4b}$

$\frac{-56}{0}$

Box: undefined