

	My child has completed this entire assignment by Sunday night. Parent/Guardian Signature _____	<u> </u> 25
--	---	-------------------

Part I. Answer 10 questions in this part. Each correct answer will receive 1 credit. No partial credit will be allowed. For each question, any work should be shown to the right side of the problem, when possible. All questions marked **W require appropriate work to be shown or no credit will be given- even if a correct answer is provided. [10]**

1. 3	2. 2	3. 3	4. 1	5. 4
6. 2	7. 3	8. 3	9. 2	10. 3

W 1. Line segment AB has a slope of $-\frac{3}{2}$. If the coordinates of point B are (4, -5), then the coordinates of point A are

- (1) (3, -2) (2) (-6, 1) (3) (-2, 4) (4) (7, -4)

W 2. Simplify $-3\sqrt{96}$.

- (1) $-6\sqrt{24}$ (2) $-12\sqrt{6}$
 (3) $-24\sqrt{8}$ (4) $18i\sqrt{16}$

$$\begin{aligned}
 & -3\sqrt{16}\sqrt{6} \\
 & -3(4)\sqrt{6} \\
 & -12\sqrt{6}
 \end{aligned}$$

$$\begin{aligned}
 y + 5 &= -\frac{3}{2}(x - 4) \\
 y + 5 &= -\frac{3}{2}x + 6 \\
 y &= -\frac{3}{2}x + 1 \\
 4 &= -\frac{3}{2}(-2) + 1 \\
 4 &= 4 \checkmark
 \end{aligned}$$

W 3. A soccer club holds a fundraiser that sold drinks (d) and snacks (s) to a number of people (p). The equation $q = \frac{d+s}{p}$ indicates the average amount of money that was spent by each person. What is s expressed in terms of q , d and p ?

- (1) $\frac{q}{p} - d$ (2) $q - \frac{d}{p}$ (3) $qp - d$ (4) $qp + d$

$$\begin{aligned}
 \frac{q}{1} &= \frac{d+s}{p} \\
 qp &= d+s \\
 qp - d &= s
 \end{aligned}$$

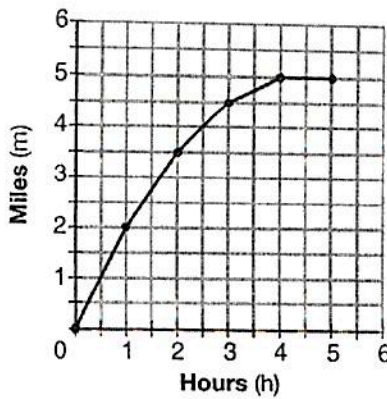
W 4. Which value of m is part of the solution set to the inequality $-3m + 4 < 16$?

- (1) -3 (2) -4 (3) -5 (4) -6

$$\begin{aligned}
 -3m + 4 &< 16 \\
 -3m &< 12 \\
 m &> -4
 \end{aligned}$$

- W 5. The graph below shows the distance in miles, m , hiked from a camp in h hours. Which hourly interval had the least rate of change?

- (1) Hour 0 to Hour 1
 (2) Hour 1 to Hour 2
 (3) Hour 2 to Hour 3
 (4) Hour 3 to Hour 4



(1) $(0,0) (1,2)$

$$\frac{\Delta y}{\Delta x} = \frac{2-0}{1-0} = 2$$

(2) $(1,2) (2,3.5)$

$$\frac{\Delta y}{\Delta x} = \frac{3.5-2}{2-1} = 1.5$$

(3) $(2,3.5) (3,4.5)$

$$\frac{\Delta y}{\Delta x} = \frac{4.5-3.5}{3-2} = 1$$

(4) $(3,4.5) (4,5)$

$$\frac{\Delta y}{\Delta x} = \frac{5-4.5}{4-3} = 0.5$$

$$6w^2 - 9w + 3 - (8w^2 + 5w - 3)$$

$$6w^2 - 9w + 3 - 8w^2 - 5w + 3$$

$$-2w^2 - 14w + 6$$

6. When $8w^2 + 5w - 3$ is subtracted from $6w^2 - 9w + 3$, the difference is

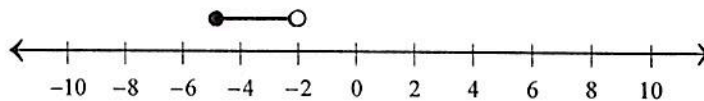
(1) $-2w^2 - 14w$

(3) $2w^2 + 14w - 6$

(2) $-2w^2 - 14w + 6$

(4) $2w^2 - 4w - 20$

7. Which inequality is represented in this graph?



(1) $-5 < x < -2$

(3) $-5 \leq x < -2$

(2) $-5 < x \leq -2$

(4) $-5 \leq x \leq -2$

8. Which expression is equivalent to $(-3x^5y^2w)^4$?

(1) $-12x^{20}y^8w^4$

(3) $81x^{20}y^8w^4$

(2) $-12x^9y^6w^4$

(4) $27x^{21}y^3z^6$

$$(-3)^4 x^{20} y^8 w^4$$

$$81 x^{20} y^8 w^4$$

9. A baker's profit (P) is calculated by selling cupcakes, c . If the function that represents this is $P(c) = 2.50c - 26$, which of the following is not true?

(1) The y-intercept is -26 and represents the initial cost to begin selling cupcakes

(2) The dependent variable is c and represents how many cupcakes are sold.

(3) The slope is 2.50 and shows that one cupcake sells for \$2.50

(4) $P(c)$ represents the net income.

10. Cookies are baked for 6 to 11 minutes and brownies for 7 to 15 minutes. Which of the following represents all times, t , when both are in the oven at the same time?

(1) $6 \leq t \leq 11$

(2) $6 \leq t \leq 15$

(3) $7 \leq t \leq 11$

(4) $11 \leq t \leq 15$

Part II. Answer both questions in this part. Each correct answer will receive the credits indicated. Clearly show all necessary steps, including appropriate formula substitutions, diagrams, graphs, charts, etc. For all questions in this part, a correct numerical answer with no work shown will receive only 1 credit. [5]

11. The number of nickels Mr. Steffens has is three more than twice the amount of quarters and five less than the amount of pennies he has. If Mr. Steffens has a total of \$1.71 in his pocket, how many of each type of coin does he have? [3]

$$\begin{aligned}
 x &= \# \text{ of quarters} = 4 & 25x + 5(2x+3) + 1(2x+8) &= 171 \\
 2x+3 &= \# \text{ of nickels} = 11 & 25x + 10x + 15 + 2x + 8 &= 171 \\
 2x+3+5 &= \# \text{ of pennies} = 15 & 37x + 23 &= 171 \\
 (2x+8) & & 37x &= 148 \\
 & & x &= 4
 \end{aligned}$$

check:

$$\begin{aligned}
 25(4) + 11(5) + 1(15) &= 171 \\
 171 &= 171 \quad \checkmark
 \end{aligned}$$

12. The scatter plot below shows the average and maximum longevity of various animals in captivity. Algebraically, write the equation of a line of best fit to represent this data. [2]

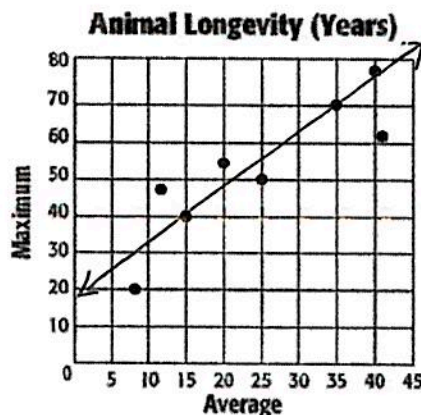
$(15, 40) \quad (35, 70)$

$$\frac{\Delta y}{\Delta x} = \frac{70-40}{35-15} = \frac{30}{20} = \frac{3}{2}$$

$$y - 40 = \frac{3}{2}(15 - x)$$

$$y - 40 = \frac{3}{2}x - 22.5$$

$$y = \frac{3}{2}x + 17.5$$

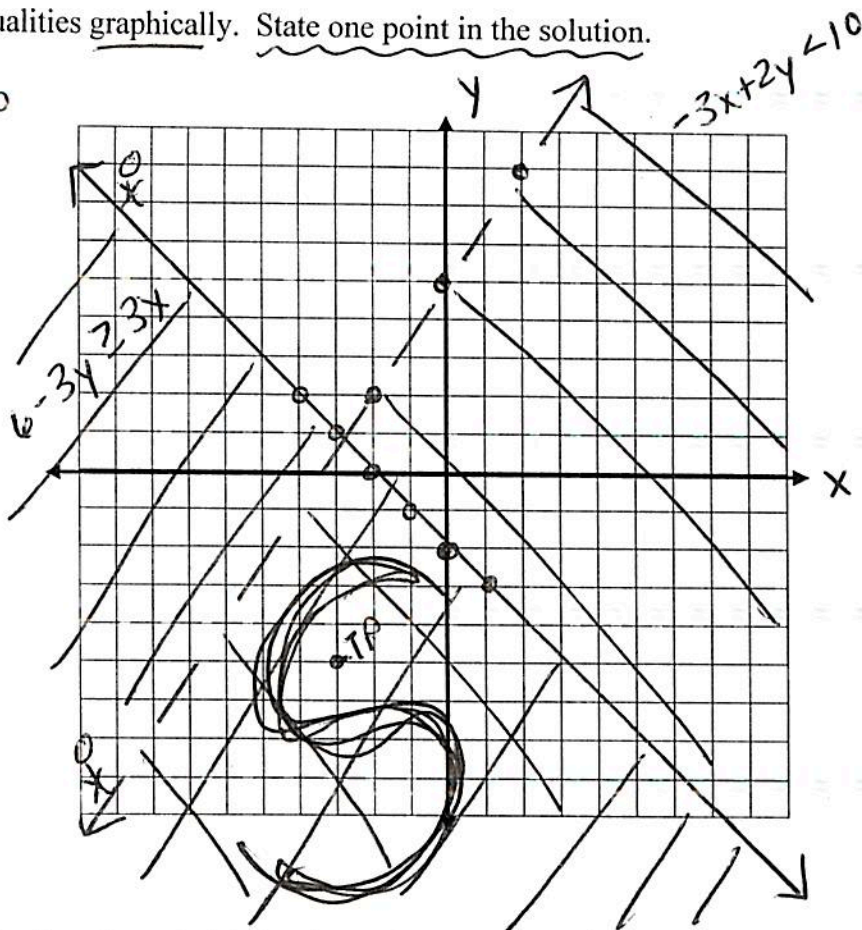


Part III. Answer both questions in this part. Each correct answer will receive 5 credits. Clearly indicate all necessary steps, including appropriate formula substitutions, diagrams, graphs, charts, etc. For all questions in this part, a correct numerical answer with no work shown will receive only 1 credit. [10]

13. Solve the following system of inequalities graphically. State one point in the solution.

$$\begin{aligned}
 -3x + 2y < 10 & \quad 2y < 3x + 10 \\
 & \quad y < \frac{3}{2}x + 5 \\
 6 - 3y & \geq 3x \\
 -3y & \geq 3x + 6 \\
 y & \leq -x - 2 \\
 m & = -\frac{1}{1} \\
 b & = -2
 \end{aligned}$$

a point in the solution
 $(-3, -5)$



14. For a project in statistics class, a pair of students decided to invest in two companies, one that produces software and one that does biotechnology research. Gavin purchased 12 shares in the software company and 8 shares in the biotech firm, which cost a total of \$15,932. At the same time, Skylar invested a total of \$15,502 in 14 shares in the software company and 5 shares in the biotech firm. How much did each share cost?

$$\begin{aligned}
 x & = \text{cost of 1 software share} = \$853 \\
 y & = \text{cost of 1 biotech share} = \$712
 \end{aligned}$$

$$\begin{aligned}
 -5(12x + 8y = 15,932) & \rightarrow -60x - 40y = -79,660 \\
 8(14x + 5y = 15,502) & \rightarrow 112x + 40y = 124,016
 \end{aligned}$$

$$\begin{array}{r}
 52x \quad = 44,356 \\
 x \quad = 853
 \end{array}$$

$$\begin{aligned}
 12x + 8y & = 15,932 \\
 12(853) + 8y & = 15,932 \\
 10,236 + 8y & = 15,932 \\
 8y & = 5,696 \\
 y & = 712
 \end{aligned}$$