| My child has completed this entire assignment by Sunday night. |  |
| :---: | :--- | :---: |
| Guardian Signature | $\overline{25}$ |

Part I. Answer 11 questions in this part. Each correct answer will receive 1 credit. For each question, all necessary work should be shown to the right side of the problem. All questions marked $W$ require appropriate work to be shown or no credit will be given - even if a correct answer is provided. [11]


1. Beverly did a study this past spring using data she collected from a cafeteria. She recorded data weekly for ice cream sales and soda sales. Beverly found the line of best fit and correlation coefficient as shown in the accompanying diagram.

Given this information, which statement(s) can correctly be concluded?
I. Eating more ice cream causes a person to become thirsty.
II. There is a positive correlation between ice cream sales and soda sales.
III. There is a weak correlation between ice cream sales and soda sales.
(1) I only
(3) II only
(2) I and II
(4) II and III

2. A company that manufactures radios first pays a start-up cost, and then spends a certain amount of money to manufacture each radio. If the cost of manufacturing $r$ radios is given by the function $C=6.75 r+200$, then the value 6.75 best represents
(1) the start-up cost
(2) the profit earned from the sale of one radio
(3) the amount spent to manufacture each radio
(4) the average number of radios manufactured
$\mathbf{W} 3$. Which equation represents a line perpendicular to the graph of $6 x-3 y=12$ ?
(1) $y=-\frac{1}{2} x+4$
(3) $y=-2 x+2$
(2) $y=\frac{1}{2} x-2$
(4) $y=2 x-2$
4. Which expression is undefined when $x=-5$ ?
(1) $\frac{3 x}{x^{2}-25}$
(3) $x-5$
(2) $\frac{x+2}{x-5}$
(4) $\frac{x-5}{3 x}$
5. Which correlation coefficient indicates a negative and strong correlation?
(1) $r=-0.998$
(2) $r=-1.056$
(3) $r=0$
(4) $r=-0.564$

W 6. When $8 w^{2}+5 w-3$ is subtracted from $6 w^{2}-9 w+3$, the difference is
(1) $-2 w^{2}-14 w$
(3) $2 w^{2}+14 w-6$
(2) $-2 w^{2}-14 w+6$
(4) $2 w^{2}-4 w$

W7. If $2(2+4 \mathrm{x})=21+5(x-3)$, then $x=$
(1) $\frac{2}{3}$
(3) $\frac{3}{2}$
(2) $-\frac{1}{2}$
(4) 8
8. Which relation represents a function?
(1)

(3)

9. A telephone call costs $\boldsymbol{c}$ cents for the first 4 minutes and $\boldsymbol{m}$ cents for each additional minute. What is the cost, in terms of $\boldsymbol{c}$ and $\boldsymbol{m}$, of an 11-minute call?
(1) $c+7 m$
(2) $c+11 m$
(3) $4 c+11 m$
(4) $4 c+7 m$
10. Which statement is true about the system shown here? $\boldsymbol{y}=\boldsymbol{x}+\mathbf{3}$
$x=y-3$
(1) The system has infinitely many solutions.
(2) The system has no solution.
(3) The system has one solution.
(4) The system shares the same $y$-intercept.
$\mathbf{W} 11$. Given the inequality: $7 x-3(4 x-8)>6 x+12-9 x$.
If $x$ is a number in the interval [4,8], which is set contains all integers that satisfy the given inequality?
(1) $\{4,5\}$
(2) $\{4,5,6\}$
(3) $\{6,7,8\}$
(4) $\{7,8\}$

Part II. Answer all questions in this part. Each correct answer will receive $\mathbf{2}$ 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. [6]
12. What is the product of $(2 x-3)$ and $\left(3 x^{2}+5 x-1\right)$ written in standard form?
13. Write a compound inequality that represents the information displayed on the sign for puppy adoption. Let $\boldsymbol{w}$ represent the age of the puppy in weeks.
14. Solve for $a$ in terms of $P$ and $m$.

$$
P=\frac{1}{5} m+a
$$

Part III. Answer both questions in this part. Each correct answer will receive 4 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. [8]
15. Find four consecutive odd integers whose sum of the first and double the second integer is twenty more than the fourth integer.
[Only an algebraic solution can receive full credit.]
16. The graph of an inequality is shown below.

a) Write the inequality represented by the graph.
b) On the same set of axes, graph the inequality $\boldsymbol{x}+3 \mathbf{y}>\mathbf{1 5}$.
c) Is $(6,3)$ a solution to the system? Justify your response.

