Topic 3 Test Review Name Key

Multiple Choice

1. Which of the following is an arithmetic sequence with a common ~~different~~ difference of 2?

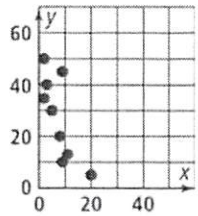
[A] 1, -3, 5, -7, 9…

[B] 10, 8, 6, 4, 2…

[C] 2, 4, 8, 16, 32…

[D] 13, 15, 17, 19, 21…

2. What type of correlation does the scatter plot below show?



[A] No Correlation

[B] Weak Negative

[C] Strong Negative

[D] Strong Positive

3. Select an appropriate r-value for the graph in #2.

[A] $r = -0.85$

[B] $r = 0.99$

[C] $r = 0.85$

[D] $r = -0.99$

Free Response

4. You open a savings account with a \$400 deposit. Each month, you deposit \$25.

a. Write a sequence that represents your balances over the first 4 months. 400, 425, 450, 475

b. Write an explicit, and recursive formula to represent the amount of money you deposit into your savings account.

explicit

$a_n = 400 + 25(n-1)$

Recursive: $a_1 = 400$

$a_n = a_{n-1} + 25$

c. How much money will you have after 12 months? $n = 12$

$a_{12} = 400 + 25(12-1) = 675$ \$675

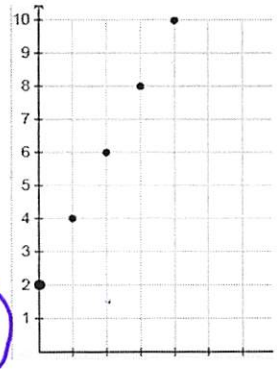
d. After how many months will you have \$950 in your account? $a_n = 950$

$950 = 400 + 25(n-1)$ $n = 23$ ∴ After 23 months

5. Write the ~~recursive~~ explicit formula equivalent to the ~~explicit~~ recursive formula $a_1 = -3$, $a_n = a_{n-1} + 5$.

$a_n = -3 + 5(n-1)$

6. Use the graph of $g(x)$ to answer the following questions.



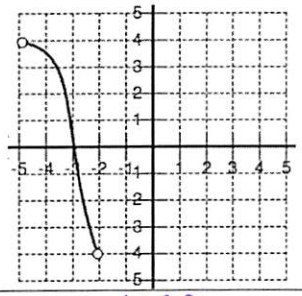
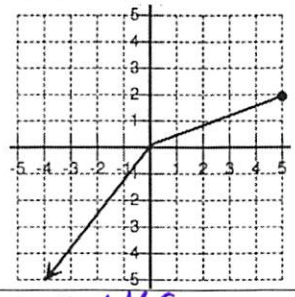
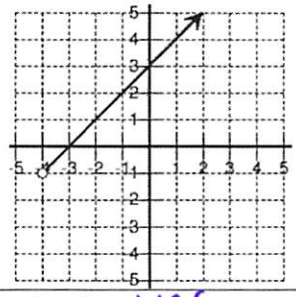
a. What is the common difference? 2

b. What is a_0? 2

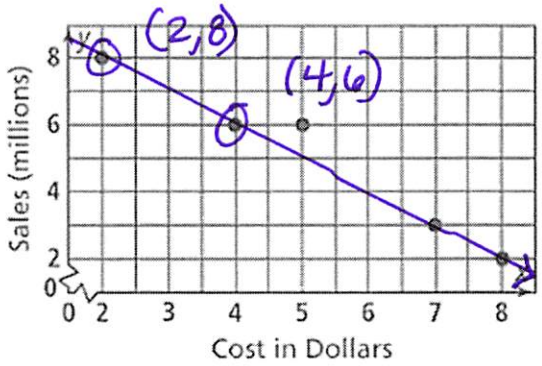
c. Write the recursive formula.

$a_n = 2n + 2$ or $a_n = 1 + 2(n-1)$

7. Complete the following table.

a. 	b. 	c. 
Function? yes	Function? yes	Function? yes
Domain: $x \in (-5,-2)$	Domain: $x \in (-\infty, 5]$	Domain: $x \in (-4,\infty)$
Range: $y \in (-4,4)$	Range: $y \in (-\infty, 2]$	Range: $y \in (-1,\infty)$

8. The graph shows the relationship between the cost of a candy bar (in dollars), and the total sales the company makes (in millions).



a. Describe the type of correlation between the cost of a candy bar and the total sales. strong Negative

b. Draw a trend line, then write the equation of the trend line.

$m = \frac{8-6}{2-4} = \frac{2}{-2} = -1$

$y - 6 = -1(x-4)$

c. Using your trend line, what would the expected sales be if the cost of one candy bar was set at \$6.50?

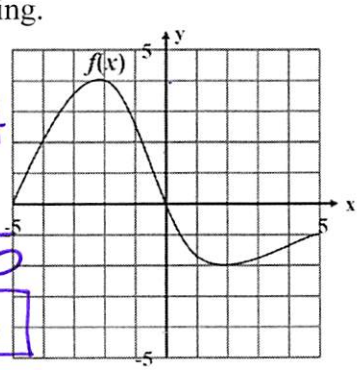
$x = 6.50$

$y - 6 = -1(6.50 - 4)$

$y = 3.5$

3.5 million

9. Using $g(x) = -2x + 4$, $h(x) = x - 7$, and the graph of $f(x)$, evaluate each of the following.



a. $h(-7)$

$= -7 - 7$

$= \boxed{-14}$

b. $h(5) + f(2)$

$h(5) = 5 - 7 = -2$

$f(2) = -2$

$-2 + -2 = \boxed{-4}$

c. $g(-2) - h(2)$

$g(-2) = -2(-2) + 4$

$g(-2) = 8$

$h(2) = 2 - 7 = -5$

$8 - (-5) = \boxed{13}$

d. $f(5) + f(-2)$

$f(5) = -1$

$f(-2) = 4$

$-1 + 4 = \boxed{3}$

e. x, when $f(x) = 5$

$\boxed{x = -2}$

f. x, when $h(x) = 26$

$26 = x - 7$

$+7 \quad +7$

$\boxed{33 = x}$