Name: _____ Date: _____

Regents Review Problem Set 2

1. Given the graph of the line represented by the equation $f(x) = -3x + b$ is increased by 5 units, the graph of the new line would be shifted 5 units

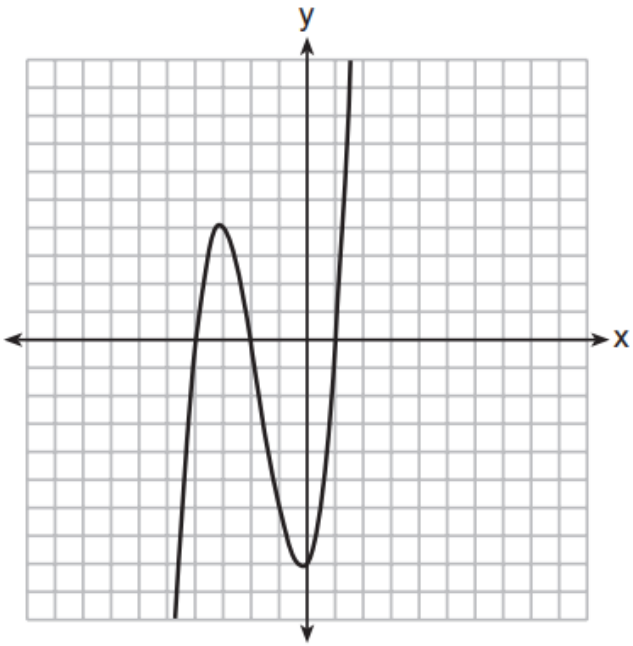
(1) down Explanation:

(2) up

(3) right

(4) left

2. The graph of $f(x)$ is shown below.



Which function could represent the graph of $f(x)$?

(1) $f(x) = (x + 2)(x^2 + 3x - 4)$ What did you do to get your answer? _____

(2) $f(x) = (x - 2)(x^2 + 3x - 4)$ _____

(3) $f(x) = (x + 2)(x^2 + 3x + 4)$

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

3. Given the following quadratic functions:

$$f(x) = -x^2 - x + 6$$

and

x	–3	–2	–1	0	1	2	3	4	5
n(x)	–7	0	5	8	9	8	5	0	–7

Which statement about these functions is true?

(1) Over the interval $-1 \leq x \leq 1$, the average rate of change for $n(x)$ is less than that for $f(x)$.

(2) The y-intercept of $f(x)$ is greater than the y-intercept for $n(x)$.

(3) The function $f(x)$ has a greater maximum value than $n(x)$.

(4) The sum of the roots of $n(x) = 0$ is greater than the sum of the roots of $f(x) = 0$.

Work:

4. What is the solution to $2x + 8 > 3x - 6$?

Work:

(1) $x < 14$

(2) $x < \frac{14}{5}$

(3) $x > 14$

(4) $x > \frac{14}{5}$

5. The table below shows the temperature, $T(m)$, of a cup of hot chocolate that is allowed to chill over several minutes, m.

How did you get your answer?

Time, m (minutes)	0	2	4	6	8
Temperature, T(m) (°F)	150	108	78	56	41

Which expression best fits the data for $T(m)$?

(1) $150(0.85)^m$

(2) $150(1.15)^m$

(3) $150(0.85)^{m-1}$

(4) $150(1.15)^{m-1}$

6. Frederick has his money invested in the stock market. The value, $m(x)$, of his portfolio can be modeled with the function $m(x) = 25{,}000(.77)^x$, where x is the number of years since he made his investment. Which statement describes the rate of change of the value of his portfolio?

(1) It decreases 77% per year. Explanation of your answer choice:

(2) It decreases 23% per year.

(3) It increases 77% per year.

(4) It increases 23% per year.

7. When multiplying polynomials for a math assignment, James found the product to be

$$-4x + 8x^2 - 2x^3 + 5$$

He then had to state the leading coefficient of this polynomial. James wrote down -4. Do you agree with James' answer? Explain your reasoning.

8. Find the zeros of $f(x) = (x - 3)^2 - 49$ algebraically.

9. The volume of a large can of tomato paste can be calculated using the formula $V = \pi r^2 h$. Write an equation to find the radius r, in terms of V and h.

Determine the diameter, to the *nearest inch*, of a large can of tomato paste that has a volume of 66 cubic inches and a height of 3.3 inches.

10. To watch a minor league baseball game, spectators must buy a ticket at the stadium. The cost of an adult ticket is $10.00 and the cost of a child ticket is $4.50. If the number of adult tickets sold is represented by *a* and child tickets sold by *c*, create an expression that represents the amount of money collected at the stadium from ticket sales.