Henderson – Regents Review 3

3

Name _____

1 Simplify the following expression. Write it in two ways, one with the use of negative exponents and one with the use of a fraction (that doesn't have negative exponents).

$$\frac{x^5}{x^9}$$

2 Simplify the following expression. $\dfrac{(3x^3)^2}{(6x)(2x)}$

3 Write the regression equation for the data shown in the table below.

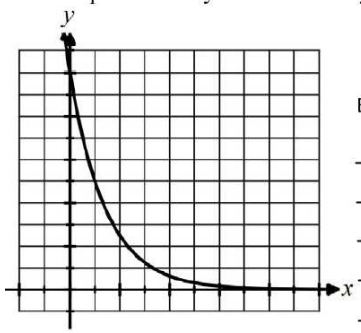
x	0	1	2	3
$f(x)$	13	39	117	351

_____

Explain in words how you were able to determine the equation.

4 Max deposits money into a savings account that earns 3.5% interest applied annually. If Max initially deposits $450 into the account, how much money does the account hold after 5-years if Max does not deposit or withdraw any additional money? Show how you arrived at your answer.

5 Determine the equation of the exponential function shown graphed below. Explain how you arrived at your answer.



_____

Explain.

6 Which is larger, the 10th term of an arithmetic sequence that begins with the terms 0 and 100 or the 10th term of a geometric sequence that begins with the terms 5 and 10? Show work that justifies your answer.

7 A local newspaper claims that the number of flu cases is increasing exponentially. On Monday, there were 8 flu cases reported. On Tuesday, there were 12 flu cases and on Wednesday there were 24 cases reported. On Thursday, there were 30 flu cases. Was the newspaper's claim of exponential increase accurate? Justify your response.

monday

tuesday

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3

Name _____

8 The first three terms of a geometric sequence are shown below. Write a recursive rule for this sequence.

216, 144, 96

What is the next term of the sequence? _____

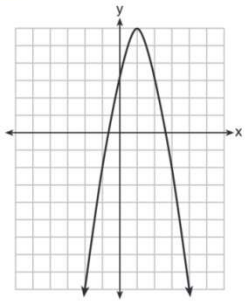
9 Solve the equation $4x^2 - 12x = 7$ algebraically for x.

10 If $f(1) = 3$ and $f(n) = -2f(n-1) + 1$, then $f(5) =$

(1) -5 (3) 21

(2) 11 (4) 43

11 Let f be the function represented by the graph below.

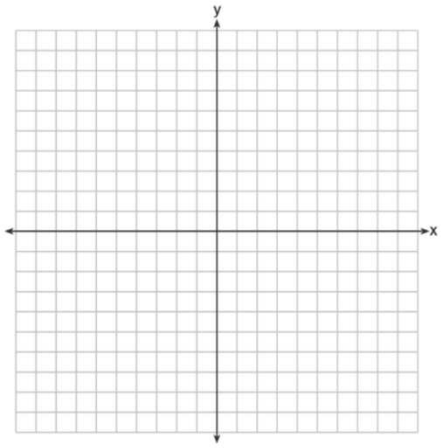


Let g be a function such that

$$g(x) = -\frac{1}{2}x^2 + 4x + 3.$$

Determine which function has the larger maximum value. Justify your answer

12 On the axes below, graph $f(x) = |3x|$.



if $g(x) = f(x) - 2$, how is the graph of $f(x)$ translated to form the graph of $g(x)$?

if $h(x) = f(x - 4)$, how is the graph of $f(x)$ translated to form the graph of $h(x)$?

wednesday

thursday