

### Exponential Functions Quiz

Read the directions for each question carefully. You must use a **PENCIL** to take this quiz and **SHOW** all of your work. Remember to check your work and write neatly. Take your time and good luck!

1. Classify the following functions represent growth or decay. Then explain why.

a.  $y = 1.5\left(\frac{3}{8}\right)^x$

b.  $y = 3(2)^x$

Classification: \_\_\_\_\_

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Explanation:

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2. Describe the transformations from the function  $f(x)$  to  $g(x)$ .

a.  $f(x) = 3^x \rightarrow g(x) = 4(3)^{x+5}$

b.  $f(x) = 2^x \rightarrow g(x) = -\left(\frac{1}{2}\right)(2)^{x-6}$

3. Create an exponential function using the function  $f(x) = 4^x$ , that has the following transformations:

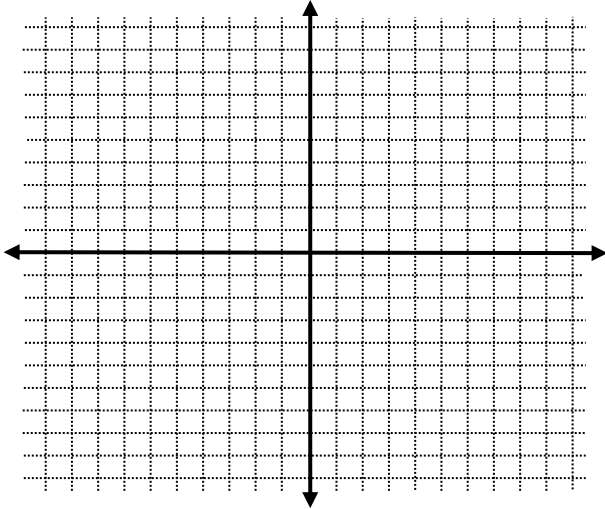
Shifted down 5 units and reflected \_\_\_\_\_

4. A population of moose is decreasing at a rate of 4% due to global warming. The population in a particular region of Canada this year is 1350. What will the population be in 10 years? Round your answer to the nearest whole number.

Equation: \_\_\_\_\_

# of Moose in 10 years: \_\_\_\_\_

5. Graph the function  $y = (2)^x + 1$ . Then name the y-intercept and asymptote. Be precise with your coordinate points. Graph the asymptote.

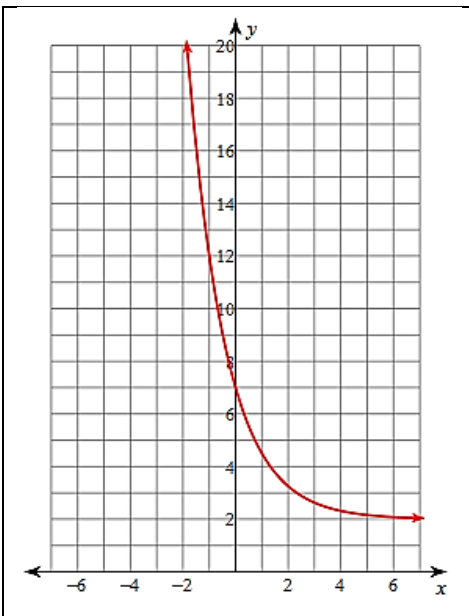


x	y

Y-intercept:

Asymptote:

6. Name the characteristics for the following function:



Domain: \_\_\_\_\_ Range: \_\_\_\_\_

X-intercept: \_\_\_\_\_ y-intercept: \_\_\_\_\_

Interval of Increase: \_\_\_\_\_ Interval of Decrease: \_\_\_\_\_

Maximum(s): \_\_\_\_\_ Minimum(s): \_\_\_\_\_

Asymptote: \_\_\_\_\_

End- Behavior: as  $x \rightarrow -\infty$ ,  $f(x) \rightarrow$  \_\_\_\_\_

as  $x \rightarrow \infty$ ,  $f(x) \rightarrow$  \_\_\_\_\_

Find the average rate of change from  $x=-1$  to  $x=0$ : \_\_\_\_\_