GSE Algebra 1 **Unit 7 Review** Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Show all work to get full credit!

1. How has the following moved: $f\left(x\right)=(x+6)^{2}$
2. How does the following equation$ g\left(x\right)=-3x^{2}$ compare to the graph of$f\left(x\right)=x^{2}$?
3. Translate the function $f\left(x\right)=3^{x}$ 5 units to the left?
4. Translate the function $f\left(x\right)=3^{x}$ 5 units down?

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| 1. Make the equation for the graph provided in vertex form.

 | 1. Make the equation for the graph provided (exponential).
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1. Identify the equation $y=a(1.6)^{t}$ as exponential growth or decay. Then give the rate of growth or decay as a percent.
2. The function f(x) = x – 9 is shifted 4 units up and 7 units to the left. Create the equation.

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| 1. What is the y-intercept for the following equation? Write the equation in vertex form then multiply out to put in standard form.

https://lh4.googleusercontent.com/iPoZ-0lyjCQGsfxWfRDyfV7iHvcDm_jxP-_oBIfdCXqSVYSFFncbow-kO3o_QaX5mgV_c1t6ujdltQbhV15_jmcnxPenL45YOtKibxPnGNLT5C5U2eCL6e30T0Xi-zBVm8_1tMPT | 1. If the roots/x-intercepts of a quadratic function (parabola) are x = -3 and x = 3, what is the equation of the axis of symmetry?
 |
| 1. Make the equation in vertex form for the graph provided.

/Users/jillptolbert/Desktop/Screen Shot 2016-10-04 at 9.34.39 PM.png | 1. What is the vertex of the graph of

$f\left(x\right)=x^{2}+10x-9$? Write the equation in vertex form.  |
| 1. Write the equation in intercept form. Then multiply out to standard form.

https://lh4.googleusercontent.com/NuCTvfGj0HH7dtSuzNeCeKO6vHjNIASXUa8fKB6EoV8O3Q7SEtAN_btN3lB-EUYx2rnCJDGi-lyo5LZABtkgzx-RHxbxCF6jw58U2DTRwlWWjAa_LnqoJasNqXdtcDzA35rkRXNW |

1. Write a function that represents a quadratic after it has been translated up 3 units, reflected over the x-axis and vertically stretched 4 units.
2. Write a function that represents an exponential decay with an asymptote of -3 and shifts left 2.
3. Write a function that represents a line that has been horizontally stretched by a factor of 1/4, reflected about the x-axis, shifted left 2, and shifted down 7.
4. How do you know if a quadratic has a maximum or a minimum?
5. For the following, **convert** it to **standard** **form**. Then **convert** it to **vertex** **form**.

$$y=3(x-2)(x+4)$$

1. Change $f\left(x\right)=3x^{2}-24x+5$ into vertex form **AND** state the vertex. Is the vertex a maximum or a minimum?
2. You deposit $650 into an account that has 8% interest compounded semi-annually. What is the money worth
	1. In 5 years? b. In 25 years?
3. $f\left(x\right)=64(0.87)^{x}$

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| --- | --- | --- | --- | --- |
| Initial amount | Ratio | Rate | Growth or Decay? | x = 13 |
|  |  |  |  |  |

1. Graph the quadratic: $y=2x^{2}+4x-1$

|  |  |
| --- | --- |
| y-int |  |
| vertex |  |
| Direction |  |
| Axis of symm |  |



1. Amy owns a graphic design store. She purchases a new printer to use in her store. The printer depreciates by a constant rate of 18% each year. The function $V=3700(1-0.18)^{t}$ can be use to model the value of the printer in dollars after t years.

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| * 1. Explain what 3,700 represents in the equation of the function.
 | * 1. What is the factor by which the printer depreciates each year?
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| * 1. Amy also considered purchasing a printer that costs $4000 and depreciates by 25% each year. Which printer will have more value in 5 years?

  | * 1. Amy wants to replace the original printer after 6 years. What is the cost of her printer after 6 years?
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| * 1. What would she have to sell the printer at to make a $200 profit?
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1. Joey and Jane were working on transformations together in Mrs. Jone’s class. Each of them came up with a different answer when given a transformation problem. Determine if either student is correct. Also, determine which aspects of each student’s answer is correct and/or incorrect (BE SPECIFIC!).

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| **PROBLEM:**Write a function that represents an exponential growth that is vertically stretched by a factor of 2, reflects about the x-axis, shifts right 5, and shifts up 6. |
| **Joey’s Answer:**$$y= -3\left(2\right)^{\left(x-5\right)}+6$$ | **Jane’s Answer:**$$y= -\frac{1}{2}\left(2\right)^{\left(x+5\right)}+6$$ |
| 1. Who is totally correct?

A) Joey b) Jane c) Neither  | 1. What is correct about Joey’s answer and why?

What is incorrect about Joey’s answer and why?  | 1. What is correct about Jane’s answer and why?

What is incorrect about Jane’s answer and why?  |

1. Wh
2. A super deadly strain of bacteria is causing the human population to decrease by 12% every day. There are currently 116,654 people still alive 60 days after the bacteria infected the public. How many people were there in the beginning?