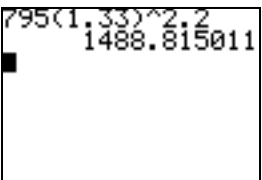
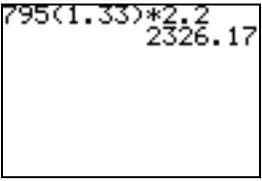
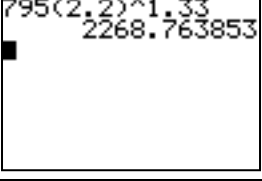
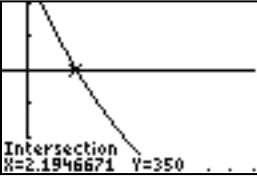

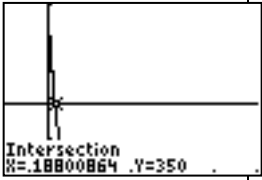
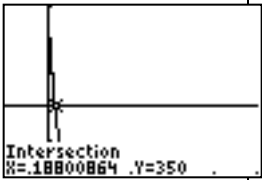


<p>1. You and your fiancé are shopping for a diamond to purchase for your engagement ring. You have done your research online and know that the cost of a diamond depends upon its weight, in carats. The cost, C, of a diamond weighing w carats can be found using the exponential model $C = 795(1.33)^w$. You have your heart set on a diamond that weighs 2.2 carats. Using the exponential function, find the</p>		
<p>A \$1,488.82</p>		<p>Correct: On the calculator's Home Screen, 2.2 is substituted in for w into the exponential function, $C = 795(1.33)^w$, the cost of the diamond, rounded to the nearest penny, is \$1,488.82.</p>
<p>B \$2,326.17</p>		<p>Incorrect: The equation was entered into the calculator incorrectly, 2.2 is a factor in a product rather than the exponent.</p>
<p>C \$2,268.76</p>		<p>Incorrect: The equation was entered into the calculator incorrectly; the growth rate for the exponential function is 2.2.</p>
<p>D There is not enough information to find the cost of the diamond.</p>		<p>Incorrect: To find the cost of the diamond substitute 2.2 in for w, the weight in carats, into the given exponential function and evaluate the expression.</p>

<p>2. Jenn is cramming for an important final math exam. She wants to stay up late to study so she drinks a lot of caffeine and eats chocolate candy, consuming 500 mg of caffeine. 350 mg of caffeine is considered a moderate level and the body eliminates caffeine at the rate of 15% per hour. How long will it take for the caffeine level in Jenn's body to reach a moderate level? (Round your answer to the</p>	
<p>A 2.0 hours</p> 	<p>Incorrect: The functions were correctly entered into the calculator and the intersection was found using features on the calculator. However, the answer was to be rounded to the nearest tenth of an</p> <div style="border: 1px solid black; padding: 5px; width: fit-content;"> $y_1 = 350$ $y_2 = 500(1 - .15)^x$ </div>
<p>B 2.2 hours</p> 	<p>Correct: The functions were correctly entered into the calculator, the intersection was found using features on the calculator and rounded to the nearest tenth.</p> <div style="border: 1px solid black; padding: 5px; width: fit-content;"> $y_1 = 350$ $y_2 = 500(1 - .15)^x$ </div>
<p>C 0.2 hours</p> 	<p>Incorrect: The Y_2 function does not show the correct decay rate.</p> <div style="border: 1px solid black; padding: 5px; width: fit-content;"> $y_1 = 350$ $y_2 = 500(.15)^x$ </div>
<p>D 0.1 hours</p> 	<p>Incorrect: The exponential function in Y_2 does not show the correct decay rate.</p> <div style="border: 1px solid black; padding: 5px; width: fit-content;"> $y_1 = 350$ $y_2 = 500(.15)^x$ </div>

3. Walter invested \$2500 into a retirement account. The exponential function below shows the amount of money, A , that will be in his account at the end of t years.

$$A = 2500(1 + r)^t$$

Walter's account pays an annual interest rate of 6%. Assuming he does not touch this money, how much will be in his account at the end of 4 years? Round your answer to the nearest dollar.

A \$1,952

X	Y1
1	2350
2	2209
3	2076.5
4	1951.9
5	1834.8
6	1724.7
7	1621.2

X=4

Incorrect: The function, $Y_1 = 2500(1 - .06)^x$ was entered incorrectly, it shows a 6% *decay* rate.

B \$2,978

X	Y1
1	2650
2	2809
3	2977.5
4	3156.2
5	3345.6
6	3546.3
7	3759.1

X=3

Incorrect: The function $Y_1 = 2500(1 + 0.06)^x$ was entered correctly into the calculator. The table was used to determine the amount of money in the account but the wrong entry in the table was used.

C \$3,156

X	Y1
1	2650
2	2809
3	2977.5
4	3156.2
5	3345.6
6	3546.3
7	3759.1

X=4

Correct: The function $Y_1 = 2500(1 + .06)^x$ was correctly entered into the calculator and the table of values was used to determine the amount of money in the account after 4 years.

D \$2525

X	Y1
1	2120
2	2247.2
3	2382
4	2525
5	2676.5
6	2837
7	3007.3

X=4

Incorrect: The function $Y_1 = 2500(1 + 0.06)^x$ was entered into the calculator incorrectly. The initial investment was \$2500 not \$2000.

<p>4. The area of a wound decreases exponentially over time. After t days, the area, A, of a wound can be modeled by the function, $A = We^{-0.05t}$, where W represents the area of the original wound. Find size of the original wound was if after 2 weeks the wound reduced in size to 3 cm^2. Round your answer to the nearest hundredth.</p>	
<p>A 3.32 cm^2</p>	<p>Incorrect: 3 was substituted in for A but 2 was incorrectly substituted in for t. [Since t is the number of days, convert 2 weeks to 14 days.]</p>
<p>B 6.04 cm^2</p>	<p>Correct: Given $A = We^{-0.05t}$, substitute the known values '3 for A' and '14 for t', and solve algebraically for W.</p>
<p>C 1.49 cm^2</p>	<p>Incorrect: Given $A = We^{-0.05t}$, 3 was incorrectly substituted in for W.</p>
<p>D 2.71 cm^2</p>	<p>Incorrect: Given $A = We^{-0.05t}$, 3 was incorrectly substituted in for W and 2 was incorrectly substituted in for t. [Since t is the number of days, one must convert 2 weeks to 14 days.]</p>