

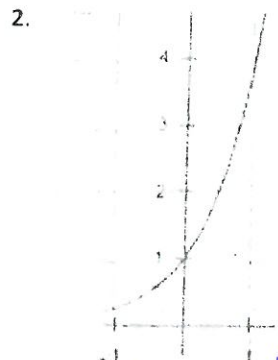
#1-4, Write the equation for the information presented in the table. First determine if it is a linear or exponential relationship.

1.

2	-4
3	-11
4	-18
5	-25

linear

$y = -7x + 10$



exponential

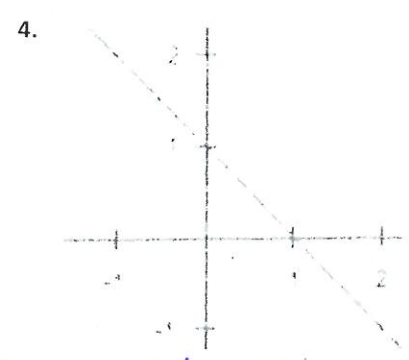
$y = bg^x$
 $y = 1(4)^x$

3.

-4	81
-3	27
-2	9
-1	3

exp

$y = 1(\frac{1}{3})^x$



linear

$y = -1x + 1$

5. Compare the rates of change for each function on your calculator.

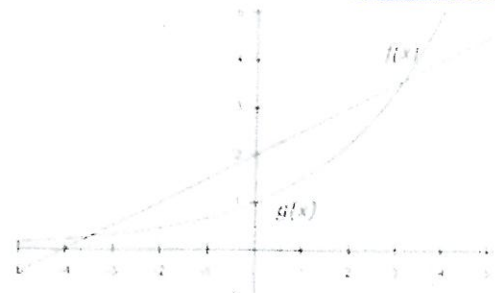
$f(x) = (1.5)^x$ $g(x) = \frac{1}{2}x + 2$

a. Estimate the interval where $f(x)$ is changing faster.

$-3.5 \leq x \leq 3$

b. Estimate the interval where $g(x)$ is changing faster.

$x > 3$



6. Two band members have only 7 days to spread the word about their next performance. Carlos thinks they can pass out 100 fliers per day for 7 days and they will have done a good job getting the word out. Sharon has a different plan. She tells 10 of her friends about the performance on the first day and asks each of her friends to tell one new person about the show that day. Then, *everyone* who was told about the show tells a new friend on the third day and so on, for 7 days. Make an assumption that the friends make sure they are telling someone who has not already been told, so the number of people who know about the performance will be doubling each day.

a. Write an equation for the number of people told about the show (y) as a function of time (x) for each band member's plan

Carlos: $y = 100x$

Sharon: $y = 10(2)^x$

b. If both members are able to meet their goal each day, how many students will each have informed by...

i. the 5th day?

Carlos = 500

Sharon = 320

ii. the 7th day?

Carlos = 700

Sharon = 1280

7. Which situation describes a correlation that is not a causal relationship?

a. The rooster crows, and the sun rises.

b. The more miles driven, the more gasoline needed.

c. The more powerful the microwave, the faster the food cooks.

8. A tour guide noticed that the larger the size of the group, the more time it took to assemble everyone for an event. The guide collected the following data:

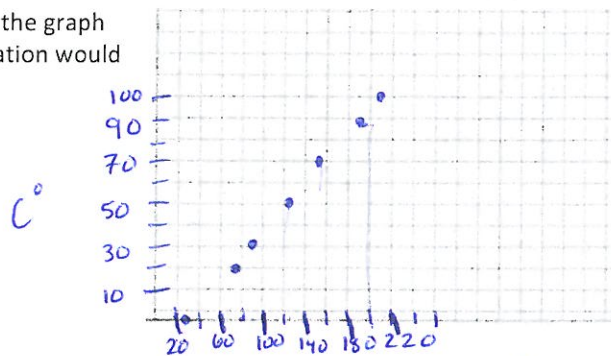
Number of People	2	3	4	5	6	7	8	9	10
Minutes to Assemble	2	2.6	3.4	4.4	5.7	7.4	9.7	12.5	16.3

- a. Make a scatter plot of data on your calculator and decide if a linear or exponential equation would fit best. Which? **Exp.**
- b. Using regression, find the best-fit equation: $y = 1.19(1.30)^x$ (round properly?)
- c. Use your equation to predict the time it would take to assemble 15 people. **60.91**
- d. How much time do you predict it will take to assemble 7 people? **7.47**
- e. How much does your prediction for time needed for a group of 7 differ from the actual time?
 $7.4 - 7.47 = 0.07$ error

9. Hannah's thermostat displays the temperature in both Fahrenheit and Celsius degrees. She recorded the data at right.

Fahrenheit degrees (°F)	Celsius degrees (°C)
32	0
68	20
85	30
122	50
158	70
194	90
212	100

a. Make a scatter plot of data (by hand) on the graph and decide if a linear or exponential equation would fit best.



- b. Using regression on your calculator, find the best-fit equation:
 $y = 0.56x - 17.78$
- c. What is the correlation value in this case and what does it indicate?
1, perfect
- d. Use your equation to predict the temperature in C° if it is -20°F.

-28.98°

10. In each of the following situations, is there likely to be a correlation? Does that correlation reflect a causal relationship? Explain.

- a. the price of gas and the number of miles your family drives for vacation **yes, yes**
- b. the price of a car and the price of new speakers for your car **yes, no**

#11-14, Find the next (2) values

11. 1024, 256, 64, 16, ... **4, 1**

12. 13, 17, 21, 25, ... **29, 33**

13. 7.8, 6.6, 5.4, 4.2, ... **3, 1.8**

14. $a_n = a_{n-1} + 5$
 $a_1 = 18$ **23, 28**