

3.1 Getting Ready for a Pool Party

A Develop Understanding Task



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Sylvia has a small pool full of water that needs to be emptied and cleaned, then refilled for a pool party. During the process of getting the pool ready, Sylvia did all of the following activities, each during a different time interval.

Removed water with a single bucket	Filled the pool with a hose (same rate as emptying pool)
Drained water with a hose (same rate as filling pool)	Cleaned the empty pool
Sylvia and her two friends removed water with her three buckets	Took a break

1. Sketch a possible graph showing the height of the water level in the pool over time. Be sure to include all of activities Sylvia did to prepare the pool for the party. Remember that only one activity happened at a time. Think carefully about how each section of your graph will look, labeling where each activity occurs.

2. Create a story connecting Sylvia's process for emptying, cleaning, and then filling the pool to the graph you have created. Do your best to use appropriate math vocabulary.

3. Does your graph represent a function? Why or why not? Would all graphs created for this situation represent a function?

READY, SET, GO!

Name _____

Period _____

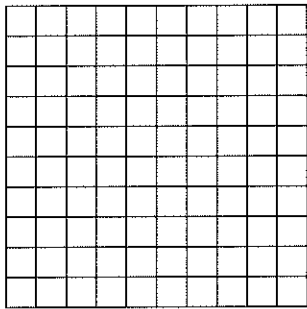
Date _____

READY

Topic: Graphing Linear and Exponential Functions

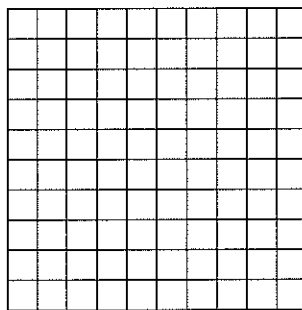
Graph each of the functions. Name 3 points that lie on each graph. Choose a scale for your graph that will make it possible to graph your 3 chosen points.

1. $f(x) = -2x + 5$



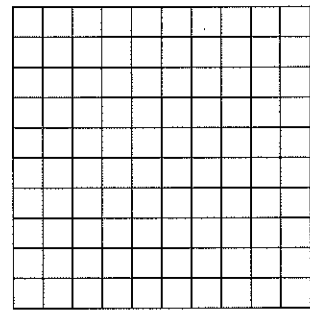
3 points:

2. $g(x) = 4 - 3x$



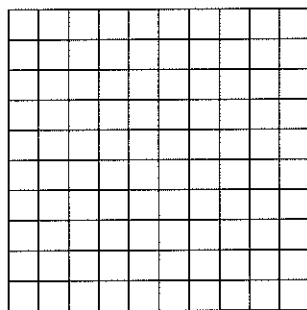
3 points:

3. $h(x) = 5(3)^x$



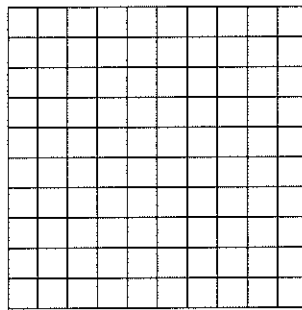
3 points:

4. $k(x) = 4(2)^x$



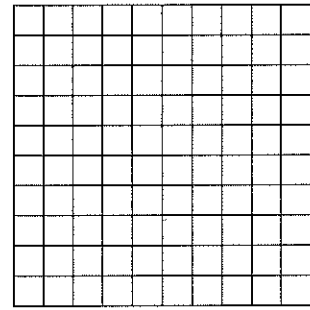
3 points:

5. $v(t) = 2.5t - 4$



3 points:

6. $f(x) = 8(3)^x$



3 points:

SET

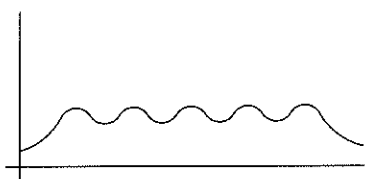
Topic: Describing attributes of a functions based on graphical representation

For each graph given match it to the contextual description that fits best. Then label the independent and dependent axis with the proper variables.

Graphs

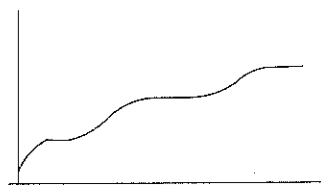
Contextual Descriptions

7.



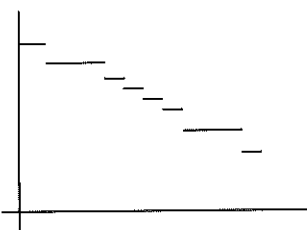
a. The amount of money in a savings account where regular deposits and some withdrawals are made.

8.



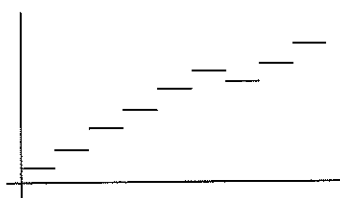
b. The temperature of the oven on a day that mom bakes several batches of cookies.

9.



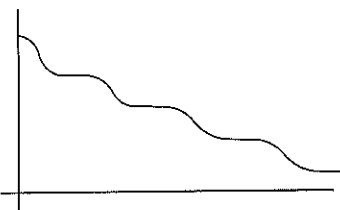
c. The amount of gasoline on hand at the gas station before a tanker truck delivers more.

10.



d. Watermelons are delivered to a farmer's market every Saturday morning. The number of watermelons available for sale on Thursday.

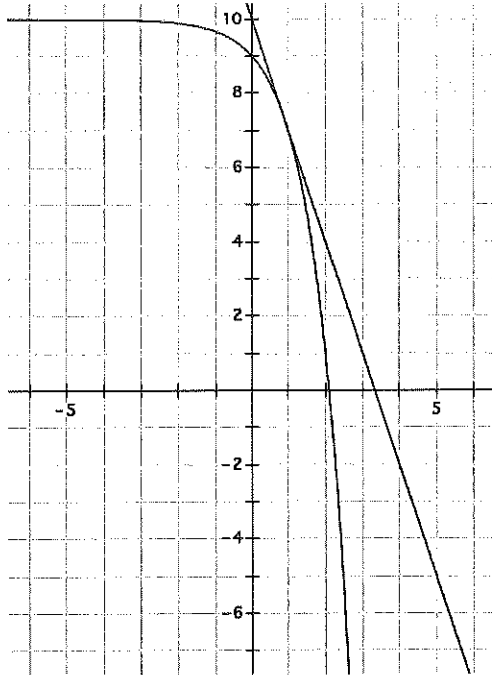
11.



e. The amount of mileage recorded on the odometer of a delivery truck over a time period.

Given the pair of graphs on each coordinate grid, create a list of similarities the two graphs share and a list of differences. (Consider attributes like, continuous, discrete, increasing, decreasing, linear, exponential, restrictions on domain or range, etc.)

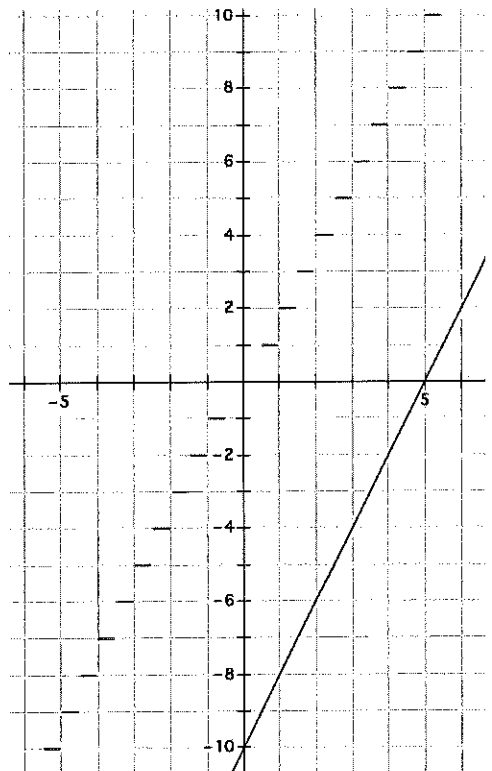
12.



Similarities:

Differences:

13.



Similarities:

Differences:

GO

Topic: Solving equations

For each equation find the value of x that makes it true. (Hint for #20 and #22: when solving a linear equation, you need to get the term containing the variable alone on one side. When solving an exponential equation, you also need to get the term containing the variable alone on one side.)

14. $10^x = 100,000$

15. $3x + 7 = 5x - 21$

16. $-6x - 15 = 4x + 35$

17. $5x - 8 = 37$

18. $3^x = 81$

19. $3x - 12 = -4x + 23$

20. $10 = 2^x - 22$

21. $243 = 8x + 3$

22. $5^x - 7 = 118$