Why Was the Ancient Egyptian Teenager Confused?

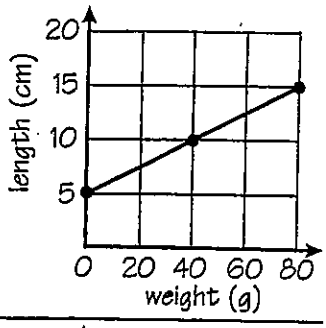
Mark the best answer for each question. Write the letter of your choice in each box containing the exercise number.

Suppose you are suspending weights from a spring.
The length of the spring is a function of the amount of weight suspended from it.

1. How long is the spring with no weight suspended from it?
P 20 cm **S** 5 cm

2. How long is the spring with 60 grams suspended from it?
I 10 cm **A** 12.5 cm

Does the graph continue upward indefinitely? Why or why not?

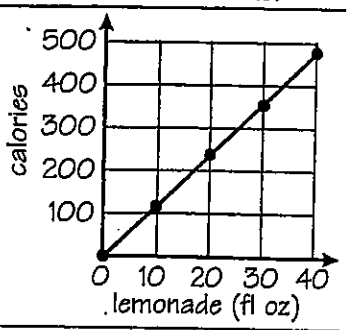


Suppose you make a pitcher of lemonade.
The number of calories in the lemonade is a function of the amount of lemonade in the pitcher.

3. How many calories are in 10 fl oz of lemonade?
E 120 cal **V** 180 cal

4. How many calories are in 32 fl oz of lemonade?
N 315 cal **Y** 384 cal

Why is the point (0, 0) on this graph but not the graph above?

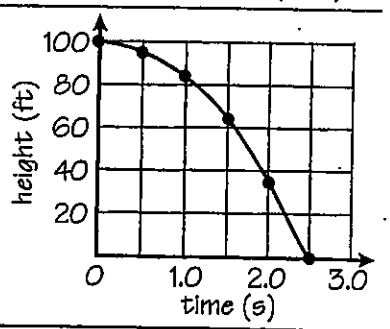


Suppose you are standing on a cliff overlooking the ocean, 100 feet above the water surface. You drop a rock.
The rock's distance from the water is a function of time.

5. How high is the rock after 1 second?
H 84 ft **B** 75 ft

6. How high is the rock after 2 seconds?
U 36 ft **O** 22 ft

How do your answers show that the rock is speeding up as it falls?

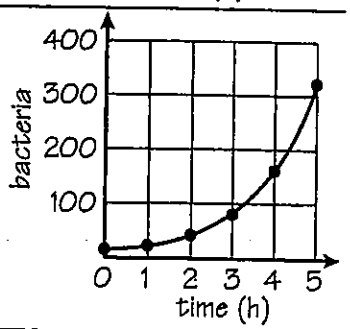


Suppose you observe a colony of bacteria. At first there are 10 bacteria, but the number doubles every hour.
The total number of bacteria is a function of time.

7. How many bacteria are there after 2 h?
F 30 **R** 40

8. How many bacteria are there after 5 hours?
W 320 **L** 360

How many hours will it be until there are over 1000 bacteria?

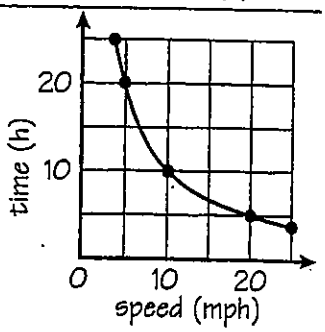


Suppose you plan to ride a bike 100 miles (someday).
The time to complete the trip is a function of your average speed.

9. How long will the trip take if your average speed is 10 mph?
T 15 h **D** 10 h

10. How long will the trip take if your average speed is 25 mph?
P 6 h **M** 4 h

Would this graph ever touch either the x- or y-axis? Why or why not?



5	3	7	9	2	9	9	4	8	2	1	2	10	6	10	10	4

Name _____ Date _____

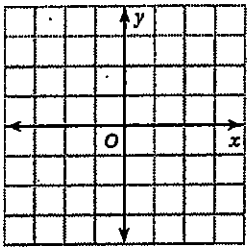
5.5 Practice

For use after Lesson 5.5

Graph the data in the table. Decide whether the function is *linear* or *nonlinear*.

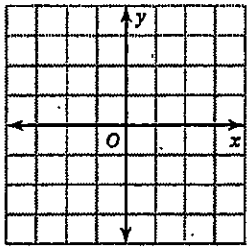
1.

x	−2	0	2	4
y	4	0	4	16



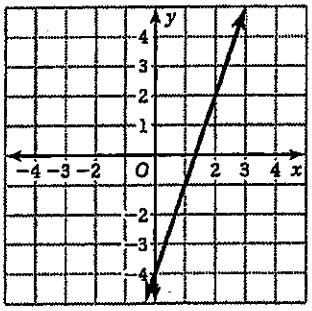
2.

x	−1	0	1	2
y	−1	1	3	5

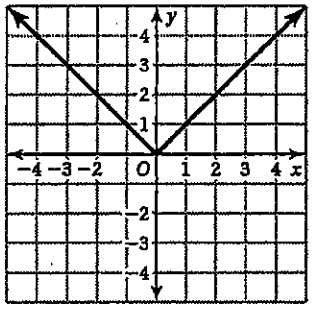


Does the graph represent a *linear* or nonlinear *function*? Explain.

3.



4.



5. The table shows the area of a square with side length x inches. Does the table represent a linear or nonlinear function? Explain.

Side Length, x	1	2	3	4
Area, A	1	4	9	16