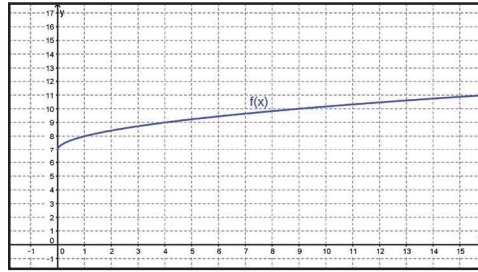




PRACTICE/HOMEWORK

1. The function $f(x) = \sqrt{x} + 7$ is graphed below.



- A. What is the value of x when $f(x) = 9$?
 B. What is the value of x when $f(x) = 7$?
 C. What is the value of x when $f(x) = 10.5$?
2. Values from the function $g(x) = 5\sqrt{3x}$ are shown in the table below.

x	0	1	2	3	4	5	6
$g(x)$	0	8.7	12.2	15	17.3	19.4	21.2

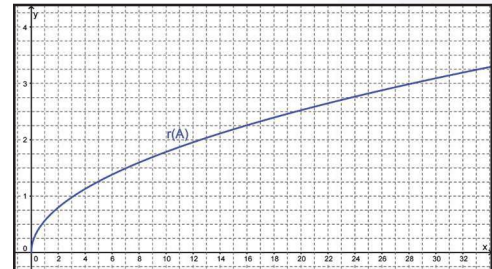
- A. What is the value of x when $g(x) = 15$?
 B. What is the value of x when $g(x) = 21.2$?
 C. What is the value of x when $g(x) = 12$?

Use the situation described below to answer questions 3 – 5.



GEOMETRY

The radius of a circle, $r(A)$, can be represented by the function $r(A) = \sqrt{\frac{A}{\pi}}$ with A representing the area of the circle. The graph of this function is shown below.



3. Write an equation whose solution would give you the area of a circle with a radius of 3 inches.
4. Reference the given graph of $r(A)$. Determine the approximate point on the graph of $r(A)$ with a function value of 3.
5. What does the point mean for the situation?

Use the information below to answer questions 6 – 8.



SCIENCE

The function $t(h) = \sqrt{\frac{h}{16.1}}$ represents the time, t , in seconds that it takes for an object to fall a distance, h , in feet due to the Earth's gravity.

- Bear is hiking in rugged terrain and encounters a cliff that he needs to descend. He has a rope to help with his descent, and wants to make sure it is long enough to make it all the way down the cliff. To help him determine the distance to the ground he throws a rock off the side of the cliff and times how long it takes to reach the ground. Write an equation whose solution would give you the height of the cliff if it takes 1.7 seconds for the rock to reach the ground.
- Use graphing technology to graph $t(h)$ and the line $y = 1.7$. Determine the point on the graph of $t(h)$ with a function value of 1.7.
- If Bear has a 52-foot rope, will he have enough to rappel down the cliff? Explain.

Use the situation described below to answer questions 9 – 12.



SCIENCE

The speed of a car when it goes into a skid, $s(d)$, can be represented by the function $s(d) = \sqrt{30fd}$, where d is the length of the skid in feet. The variable f is called the coefficient of friction, and it varies based on the road conditions at the time of the skid. Eli was involved in a car accident on a day when f was determined to be 0.8. The resulting function is $s(d) = \sqrt{24d}$.

- Eli reported that he was going about 40 miles an hour at the time of the accident. Write an equation whose solution would give you the approximate length of the skid if he was going 40 miles per hour.
- Reference the table below showing values of $s(d)$. Determine the approximate point of $s(d)$ with a function value of 40.

LENGTH OF SKID, d	0	6	24	54	67	96	105	149	150	151
APPROXIMATE SPEED, $s(d)$	0	12	24	36	40.1	48	50.2	59.8	60	60.2

- What does the point mean for the situation?

12. If the actual length of the skid was 70 feet, was the speed of the car really 40 mph? Explain.

Use the situation described below to answer questions 13 – 15.



SCIENCE

Carrie is at an amusement park and is in line for the pendulum ride. The carriage holding the people swings back and forth, moving like a pendulum. The function that represents the time in seconds of one complete swing, $T(x)$, based on the pendulum length, x , in meters, is $T(x) = 2\pi\sqrt{\frac{x}{9.8}}$.

13. While in line, Carrie notices that the period of the pendulum is about 10 seconds. Write an equation whose solution would give you the length of the pendulum if it takes 10 seconds to swing back and forth.
14. Use graphing technology to make a table of values for $T(x)$. Use the table to determine the approximate point of $T(x)$ with a function value of 10.
15. What does the intersection point mean for the situation?

Use the situation described below to answer questions 16 – 18.



GEOMETRY

A set of cylindrical pipes at the hardware store consists of cylinders all having a height of 18 inches but with different radii. The radius of each cylinder can be determined based on its volume, using the function $r(V) = 0.133\sqrt{V}$.

16. Write an equation that would determine the volume of a cylinder having a radius of 2 inches.
17. Generate a table of values for $r(V)$ using technology. Use the table to determine the approximate point of $r(V)$ with a function value of 2.
18. What does the intersection point mean for the situation?

For questions 19 – 23, solve using either a graph or table.

19. Given the function $f(x) = \sqrt{\frac{x}{4}}$, determine the value of x when $f(x) = 1.5$.

20. Given the function $f(x) = 1.5\sqrt{x}$, determine the value of x when $f(x) = 4$.



GEOMETRY

21. A food company is making canned soup. The radius of each can, $r(V)$, can be determined based on its volume, using the function $r(V) = \sqrt{\frac{V}{26}}$.
- A. Write an equation whose solution would give you the volume of a can with a radius of 3 cm.
 - B. What is the solution to your equation, and what does it mean for the situation?
22. The equation $t(h) = \sqrt{\frac{h}{16.1}}$ represents the time, t , in seconds that it takes for an object to fall a distance, h , in feet, due to the Earth's gravity. Liz accidentally dropped her bottled water from the top of the bleachers during a game. It took 1 second to reach the ground.
- A. Write an equation whose solution would give you the height from which the bottle was dropped.
 - B. What is the solution to your equation, and what does it mean for the situation?



SCIENCE

23. For a movie scene, a stunt car driver must skid her car to a stop just in front of a building. She will be driving at 60 miles per hour when she applies her brakes. To find the distance, d , she should apply the brakes in order to come to a stop before she reaches the wall, she can use the equation $60 = \sqrt{18d}$. How far from the building must she apply the brakes in order to safely stop?