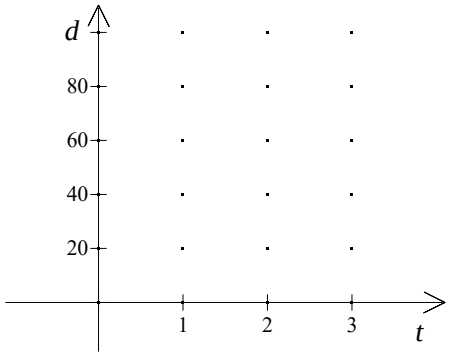
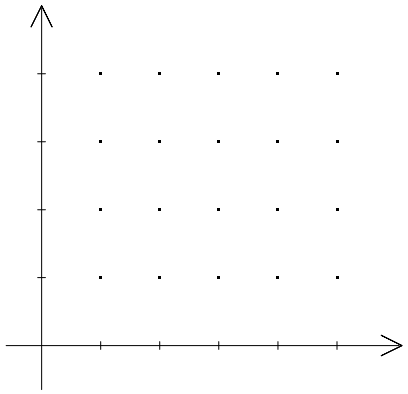
NAME:_____

1. If an object is dropped from a height of 84 feet, the function $d = -16t^2 + 84$ gives the height of the object after t seconds. Graph this function. Approximately how long does it take the object to reach the ground ($d = 0$)?



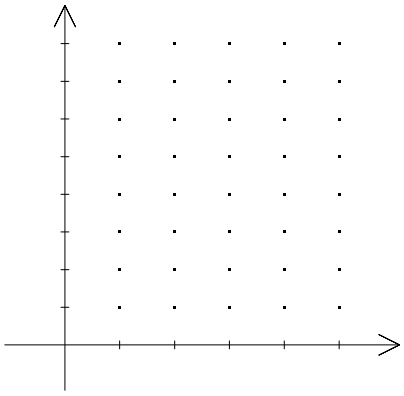
[1] _____

2. When an object is dropped from a high place, the rate at which it falls can be described by the quadratic function $d = 16t^2$, where d is the distance in feet and t is the time in seconds.
a. What values of t make sense in the function?
b. What values of d make sense in the function?
c. Graph the function.



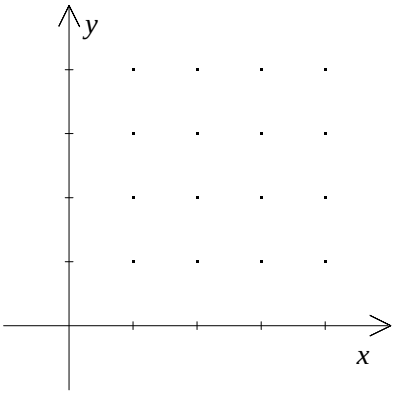
[2] _____

3. Suppose that a cake must fit into a box with a base that is 10 in. long and 10 in. wide. You can use the quadratic function $A = \pi r^2$ to find the area of a cake in terms of its radius.
a. What values of r make sense in the function?
b. What values of A make sense in the function?
c. Graph the function. Use $\pi = 3.14$.

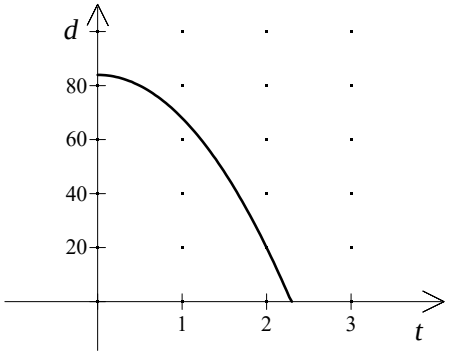


[3] _____

4. a. Marla has plans for a garden inside a square fenced-in area. The garden will not include a square in the middle. Each side of the fenced-in area is 15 ft. If each side of the middle square is x ft, the function $y = 225 - x^2$ gives the area of garden in ft^2. Graph this function.
b. What values make sense for the domain? Explain why.
c. What values make sense for the range? Explain why.



[4] _____



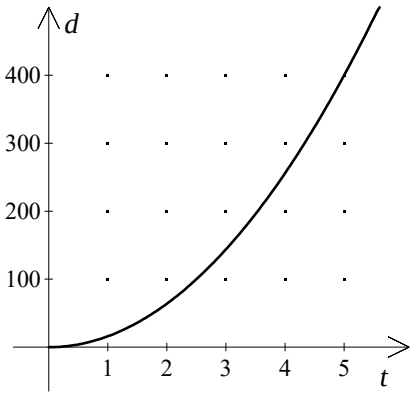
about 2.3 seconds

[1]

a. $t \geq 0$

b. $d \geq 0$

c.

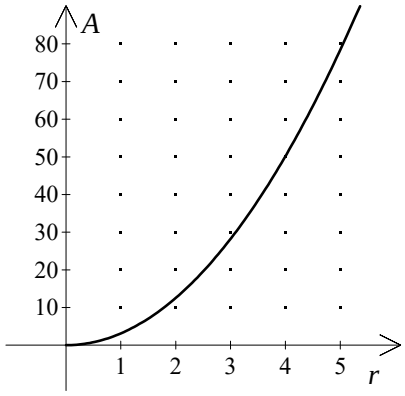


[2]

a. $0 < r < 5$

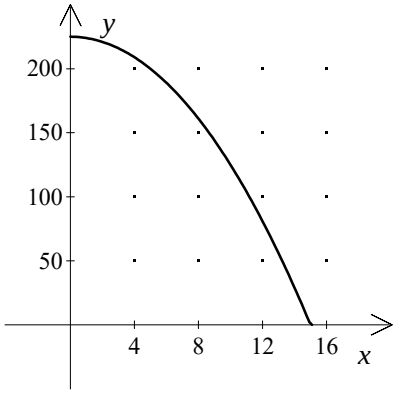
b. $0 < A < 78.5$

c.



[3]

a.



b. $0 < x < 15$; The length of a side of the inner square must fit inside the fenced-in area.

c. $0 < y < 225$; The area of the garden must be within the area of the fenced-in area.

[4]