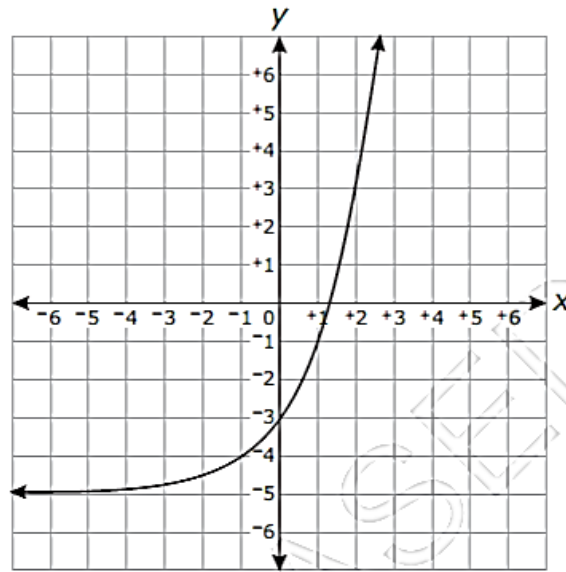


# TNReady EOC Practice Test Questions SET #3

#	<u>Question</u>	For Ms. Clark's use only												
1	<p>Which expression is equivalent to <math>(x^{\frac{1}{3}})^{-3}</math>?</p> <p>A <math>\sqrt{x}</math></p> <p>B <math>\frac{1}{x}</math></p> <p>C <math>\frac{1}{x^9}</math></p> <p>D <math>\frac{1}{x^{27}}</math></p>	NC 20												
2	<p>The table below shows the average weight of a type of plankton after several weeks.</p> <table border="1" data-bbox="597 951 950 1220"><thead><tr><th>Time (weeks)</th><th>Weight (ounces)</th></tr></thead><tbody><tr><td>8</td><td>0.04</td></tr><tr><td>9</td><td>0.07</td></tr><tr><td>10</td><td>0.14</td></tr><tr><td>11</td><td>0.25</td></tr><tr><td>12</td><td>0.49</td></tr></tbody></table> <p>What is the average rate of change in weight of the plankton from week 8 to week 12?</p> <p>A 0.0265 ounce per week</p> <p>B 0.0375 ounce per week</p> <p>C 0.055 ounce per week</p> <p>D 0.1125 ounce per week</p>	Time (weeks)	Weight (ounces)	8	0.04	9	0.07	10	0.14	11	0.25	12	0.49	NC 21
Time (weeks)	Weight (ounces)													
8	0.04													
9	0.07													
10	0.14													
11	0.25													
12	0.49													

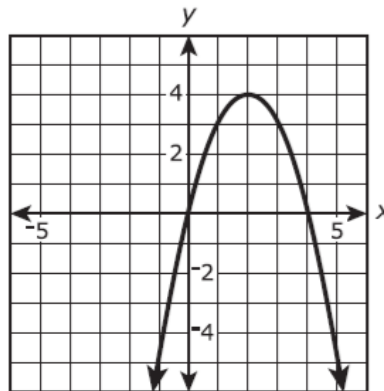
<p><b>3</b></p>	<p>Collin noticed that various combinations of nickels and dimes could add up to \$0.65.</p> <ul style="list-style-type: none"> <li>• Let <math>x</math> equal the number of nickels.</li> <li>• Let <math>y</math> equal the number of dimes.</li> </ul> <p>What is the domain where <math>y</math> is a function of <math>x</math> and the total value is \$0.65?</p> <p>A <math>\{0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13\}</math></p> <p>B <math>\{1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13\}</math></p> <p>C <math>\{0, 1, 3, 5, 7, 9, 11, 13\}</math></p> <p>D <math>\{1, 3, 5, 7, 9, 11, 13\}</math></p>	<p>NC37</p>
<p><b>4</b></p>	<p>The value of an antique car is modeled by the function <math>V(x) = 107,000(1.009)^{\left(\frac{2}{3}x\right)}</math> where <math>x</math> is the number of years since 2005. By what <b>approximate</b> percent rate is the value of the car increasing per year?</p> <p>A 0.04%</p> <p>B 0.14%</p> <p>C 0.60%</p> <p>D 1.40%</p>	<p>NC 38</p>
<p><b>5</b></p>	<p>An elevator can hold a maximum of 1,500 pounds. Eight people need to use the elevator. Bill had some measures from the data set of how much each person weighed. Which measure would be most useful to determine if the people can safely use the elevator?</p> <p>A mean</p> <p>B median</p> <p>C mode</p> <p>D interquartile range</p>	<p>NC 50</p>

The function  $f(x) = 2(2)^x$  was replaced with  $f(x) + k$ , resulting in the function graphed below.



What is the value of  $k$ ?

7 The function  $f(x) = 4x - x^2$  is graphed in the  $xy$ -coordinate plane as shown.

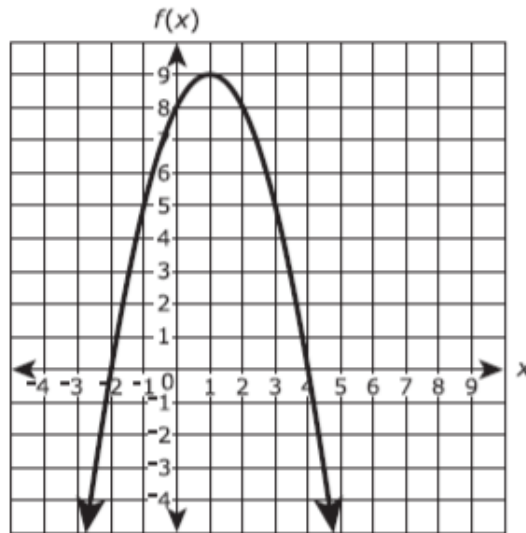


Based on the graph of the function, which statements are true?

Select **all** that apply.

- A.  $f$  is increasing on the interval  $x < 0$ .
- B.  $f$  is decreasing on the interval  $x < 0$ .
- C.  $f$  is increasing on the interval  $0 < x < 2$ .
- D.  $f$  is decreasing on the interval  $0 < x < 2$ .
- E.  $f$  is increasing on the interval  $2 < x < 4$ .
- F.  $f$  is decreasing on the interval  $2 < x < 4$ .
- G.  $f$  is increasing on the interval  $x > 4$ .
- H.  $f$  is decreasing on the interval  $x > 4$ .

- 8 The figure shows a graph of the function of  $f(x)$  in the  $xy$ -coordinate plane, with the vertex at  $(1, 9)$  and the zeros at  $-2$  and  $4$ .

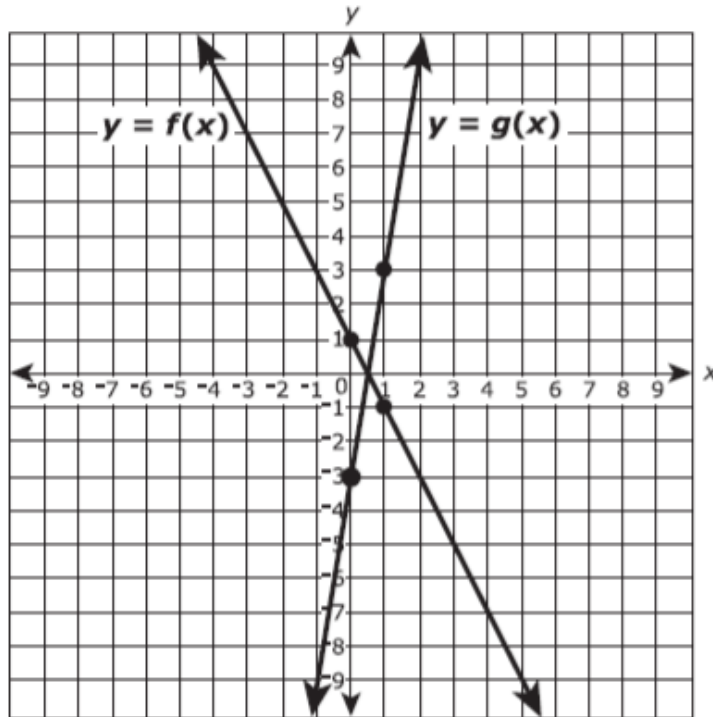


The function  $g$  is defined by  $g(x) = -3x + 2$ .

Which statements are true? Select **all** that apply.

- A.  $f(-2)$  is greater than  $g(-2)$ .
- B.  $f(-1)$  is less than  $g(-1)$ .
- C.  $f(0)$  is greater than  $g(0)$ .
- D.  $f(1)$  is less than  $g(1)$ .
- E.  $f(2)$  is greater than  $g(2)$ .

- 9 The figure shows the graphs of the functions  $y = f(x)$  and  $y = g(x)$ . The four indicated points all have integer coordinates.



If  $g(x) = k \cdot f(x)$ , what is the value of  $k$ ?

- 10 **Elephant Population Estimates—Namibia**  
Combined estimates for Etosha National Park and the Northwestern Population

Year	Base Year	Estimated Number of Elephants
1998	3	3,218
2000	5	3,628
2002	7	3,721
2004	9	3,571

The elephant population in northwestern Namibia and Etosha National Park can be predicted by the expression  $2,649(1.045)^b$ , where  $b$  is the number of years since 1995.

What does the value 2,649 represent?

- A. the predicted increase in the number of elephants in the region each year
- B. the predicted number of elephants in the region in 1995
- C. the year when the elephant population is predicted to stop increasing
- D. the percentage the elephant population is predicted to increase each year

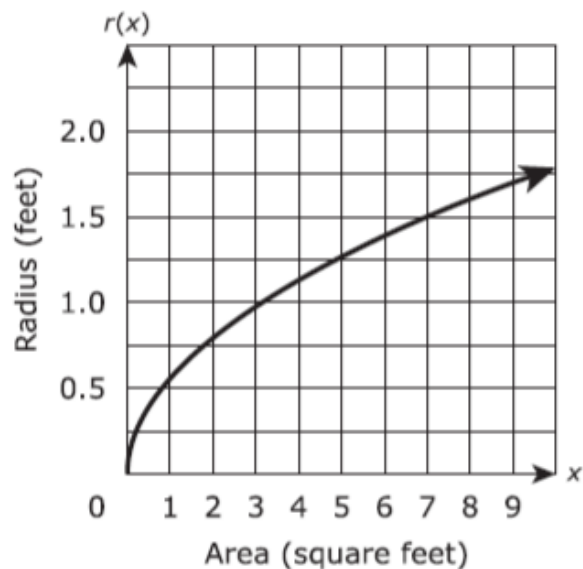
11

A local theater sells admission tickets for \$9.00 on Thursday nights. At capacity, the theater holds 100 customers. The function  $M(n) = 9n$  represents the amount of money the theater takes in on Thursday nights, where  $n$  is the number of customers. What is the domain of  $M(n)$  in this context?

- A. all whole numbers
- B. all non-negative rational numbers
- C. all non-negative integers that are multiples of 9
- D. all non-negative integers less than or equal to 100

12

The function  $r(x)$  represents the radius of a circle for a given area,  $x$ . A graph of the function is shown in the figure.



According to the graph, what is the approximate average rate of change in the radius of the circle as the area increases from 3 square feet to 7 square feet?

- A. 0.125 foot per square foot
- B. 0.25 foot per square foot
- C. 0.5 foot per square foot
- D. 8 feet per square foot

13

A certain type of lily plant is growing in a pond in such a way that the number of plants is growing exponentially. The number of plants,  $N$ , in the pond at time  $t$  is modeled by the function  $N(t) = ab^t$ , where  $a$  and  $b$  are constants and  $t$  is measured in months. The table shows two values of the function.

$t$	$N(t)$
0	150
1	450

Which equation can be used to find the number of plants in the pond at time  $t$ ?

- A.  $N(t) = 150(1)^t$
- B.  $N(t) = 450(1)^t$
- C.  $N(t) = 150(3)^t$
- D.  $N(t) = 450(3)^t$

14

The population of a city in 2005 was 36,000. By 2010, the city's population had grown to 43,800 people.

**Part A**

Assuming that the population of the city has grown linearly since 2005 and continues to grow at the same rate, what will be the population in 2015?

Enter your answer in the box.

**Part B**

Which expression is an appropriate exponential model for the population of the city? Let  $t$  represent the time, in years, since 2005.

- A.  $36,000(1.04)^t$
- B.  $36,000(1.04)^{5t}$
- C.  $36,000(1.217)^t$
- D.  $36,000(1.217)^{5t}$

**Part C**

Assuming that the population of the city has grown exponentially since 2005 and continues to grow at the same rate, what will be the population in 2015? Give your answer to the nearest whole number.

Enter your answer in the box.