

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear functions	<div><div></div><div></div><div></div></div>

ID: 84664a7c

The front of a roller-coaster car is at the bottom of a hill and is 15 feet above the ground. If the front of the roller-coaster car rises at a constant rate of 8 feet per second, which of the following equations gives the height  $h$ , in feet, of the front of the roller-coaster car  $s$  seconds after it starts up the hill?

A.  $h = 8s + 15$

B.  $h = 15s + \frac{335}{8}$

C.  $h = 8s + \frac{335}{15}$

D.  $h = 15s + 8$

# Question ID 06fc1726

1.2

Assessment	Test	Domain	Skill	Difficulty
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ID: 06fc1726

If  $f$  is the function defined by  $f(x) = \frac{2x-1}{3}$ ,  
 what is the value of  $f(5)$ ?

- A.  $\frac{4}{3}$
- B.  $\frac{7}{3}$
- C. 3
- D. 9

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ID: 6863c7ce

$$d = 16t$$

The given equation represents the distance  $d$ , in inches, where  $t$  represents the number of seconds since an object started moving. Which of the following is the best interpretation of **16** in this context?

- A. The object moved a total of **16** inches.
- B. The object moved a total of **16 $t$**  inches.
- C. The object is moving at a rate of **16** inches per second.
- D. The object is moving at a rate of  $\frac{1}{16}$  inches per second.

# Question ID bf36c815

1.4

Assessment	Test	Domain	Skill	Difficulty
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ID: bf36c815

The function  $g$  is defined by  $g(x) = -x + 8$ .

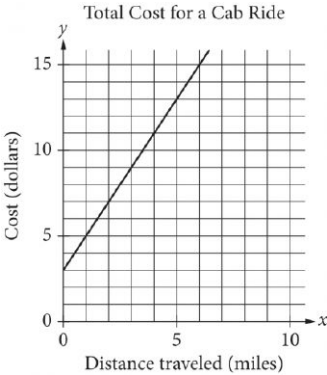
What is the value of  $g(0)$ ?

- A.  $-8$
- B.  $0$
- C.  $4$
- D.  $8$

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ID: 3f5375d9

The line graphed in the  $xy$ -plane below models the total cost, in dollars, for a cab ride,  $y$ , in a certain city during nonpeak hours based on the number of miles traveled,  $x$ .



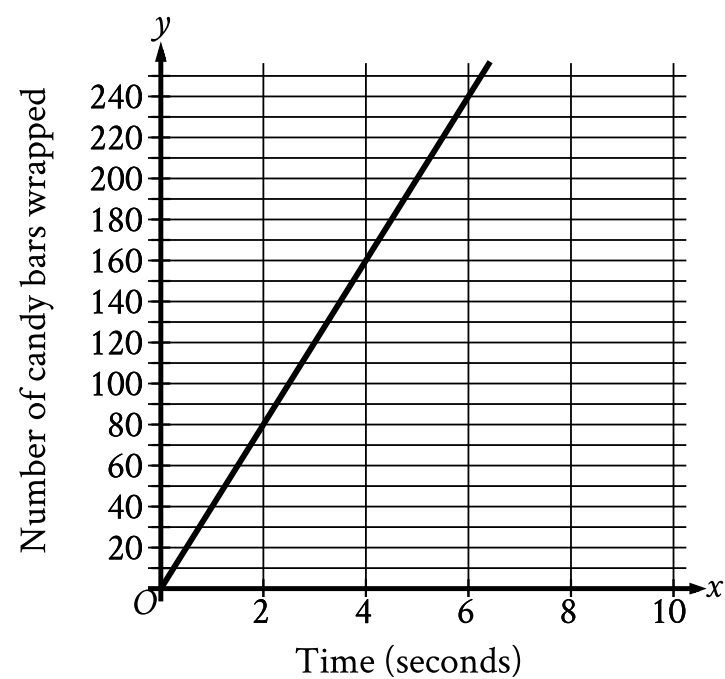
According to the graph, what is the cost for each additional mile traveled, in dollars, of a cab ride?

- A. \$2.00
- B. \$2.60
- C. \$3.00
- D. \$5.00

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ID: 13294295

The graph shown models the number of candy bars a certain machine wraps with a label in  $x$  seconds.



- According to the graph, what is the estimated number of candy bars the machine wraps with a label per second?
- A. 2
  - B. 40
  - C. 78
  - D. 80

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ID: 12983c1e

$x$	$f(x)$
1	5
3	13
5	21

Some values of the linear function  $f$  are shown in the table above.  
Which of the following defines  $f$  ?

- A.  $f(x) = 2x + 3$
- B.  $f(x) = 3x + 2$
- C.  $f(x) = 4x + 1$
- D.  $f(x) = 5x$

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ID: f79fffb

The function  $h$  is defined by  $h(x) = 3x - 7$ . What is the value of  $h(-2)$ ?

- A.  $-13$
- B.  $-10$
- C.  $10$
- D.  $13$



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ID: 3462d850

Marisol drove 3 hours from City A to City B. The equation below estimates the distance  $d$ , in miles, Marisol traveled after driving for  $t$  hours.

$$d = 45t$$

Which of the following does 45 represent in the equation?

- A. Marisol took 45 trips from City A to City B.
- B. The distance between City A and City B is 45 miles.
- C. Marisol drove at an average speed of about 45 miles per hour.
- D. It took Marisol 45 hours to drive from City A to City B.

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ID: 255996a6

$T = 1,000 + 18h$

In the equation above,  $T$  represents Brittany’s total take-home pay, in dollars, for her first week of work, where  $h$  represents the number of hours she worked that week and 1,000 represents a sign-on bonus. If Brittany’s total take-home pay was \$1,576, for how many hours was Brittany paid for her first week of work?

- A. 16
- B. 32
- C. 55
- D. 88

# Question ID a1696f3e

1.11

Assessment	Test	Domain	Skill	Difficulty
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ID: a1696f3e

The function  $g$  is defined as  $g(x) = 5x + a$ , where  $a$  is a constant. If  $g(4) = 31$ , what is the value of  $a$  ?

- A. 30
- B. 22
- C. 11
- D.  $-23$

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ID: 13909d78

The function  $f$  is defined by the equation  $f(x) = 100x + 2$ . What is the value of  $f(x)$  when  $x = 9$ ?

- A. 111
- B. 118
- C. 900
- D. 902

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ID: de6fe450

On January 1, 2015, a city's minimum hourly wage was \$9.25. It will increase by \$0.50 on the first day of the year for the next 5 years. Which of the following functions best models the minimum hourly wage, in dollars,  $x$  years after January 1, 2015, where  $x = 1, 2, 3, 4, 5$ ?

- A.  $f(x) = 9.25 - 0.50x$
- B.  $f(x) = 9.25x - 0.50$
- C.  $f(x) = 9.25 + 0.50x$
- D.  $f(x) = 9.25x + 0.50$

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ID: cee5b352

The length,  $y$ , of a white whale was **162 centimeters (cm)** when it was born and increased an average of **4.8 cm** per month for the first **12** months after it was born. Which equation best represents this situation, where  $x$  is the number of months after the whale was born and  $y$  is the length, in **cm**, of the whale?

- A.  $y = 162x$
- B.  $y = 162x + 162$
- C.  $y = 4.8x + 4.8$
- D.  $y = 4.8x + 162$

# Question ID 81390d6c

1.15

Assessment	Test	Domain	Skill	Difficulty
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ID: 81390d6c

The function  $h$  is defined by  $h(x) = x + 200$ . What is the value of  $h(50)$ ?

- A. 200
- B. 250
- C. 10,000
- D. 50,200

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ID: 2eef7e61

The graph of the function  $f$  is a line in the  $xy$ -plane. If the line has slope  $\frac{3}{4}$  and  $f(0) = 3$ , which of the following defines  $f$ ?

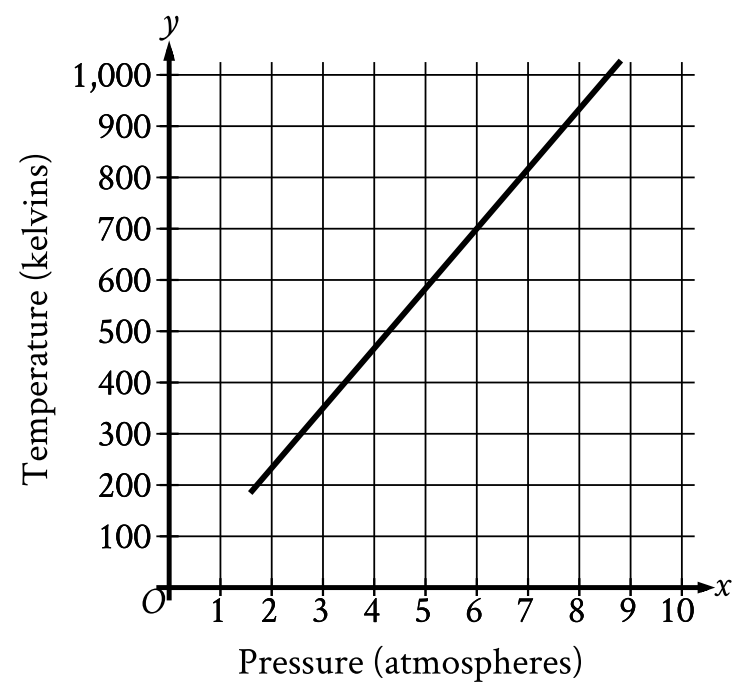
- A.  $f(x) = \frac{3}{4}x - 3$
- B.  $f(x) = \frac{3}{4}x + 3$
- C.  $f(x) = 4x - 3$
- D.  $f(x) = 4x + 3$



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ID: 0ea7ef01

Oxygen gas is placed inside a tank with a constant volume. The graph shows the estimated temperature  $y$ , in kelvins, of the oxygen gas when its pressure is  $x$  atmospheres.



What is the estimated temperature, in kelvins, of the oxygen gas when its pressure is **6** atmospheres?

- A. **6**
- B. **60**
- C. **700**
- D. **760**

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ID: 1ecaa9c0

Robert rented a truck to transport materials he purchased from a hardware store. He was charged an initial fee of \$20.00 plus an additional \$0.70 per mile driven. If the truck was driven 38 miles, what was the total amount Robert was charged?

- A. \$46.60
- B. \$52.90
- C. \$66.90
- D. \$86.50

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ID: 8643d906

$P(t) = 250 + 10t$

The population of snow leopards in a certain area can be modeled by the function  $P$  defined above, where  $P(t)$  is the population  $t$  years after 1990.

Of the following, which is the best interpretation of the equation

$P(30) = 550$  ?

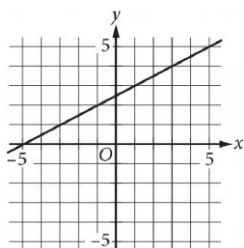
- A. The snow leopard population in this area is predicted to be 30 in the year 2020.
- B. The snow leopard population in this area is predicted to be 30 in the year 2030.
- C. The snow leopard population in this area is predicted to be 550 in the year 2020.
- D. The snow leopard population in this area is predicted to be 550 in the year 2030.

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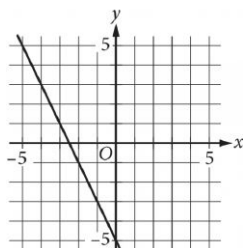
ID: a8e6bd75

Which of the following is the graph of the equation  $y = 2x - 5$  in the  $xy$ -plane?

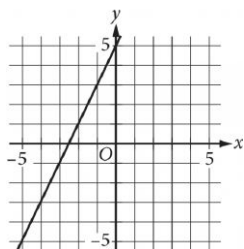
A.



B.



C.



D.

