SAT Math

Linear Functions 1

Question #	ID

1.1 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. $h = 15s + 8$

1.2 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

1.3 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 $16t$ 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.

SAT Math

Linear Functions 1

Question #	ID

1.4 bf36c815

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

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

A. -8

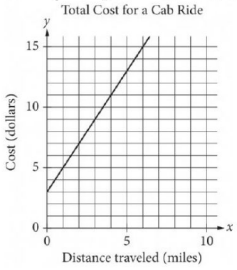
B. 0

C. 4

D. 8

1.5 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

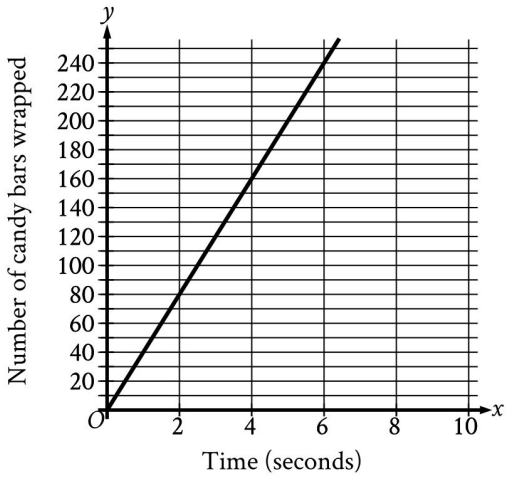
SAT Math

Linear Functions 1

Question # **ID**

1.6 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

1.7 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. $f(x) = 5x$

1.8 f79fffba

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

SAT Math

Linear Functions 1

Question #	ID

1.9 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.

1.10 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

1.11 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

1.12 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

SAT Math

Linear Functions 1

Question #	ID

1.13 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. $f(x) = 9.25x + 0.50$

1.14 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. $y = 4.8x + 162$

1.15 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. $50{,}200$

SAT Math

Linear Functions 1

Question # **ID**

1.16 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. $f(x)=\frac{3}{4}x-3$

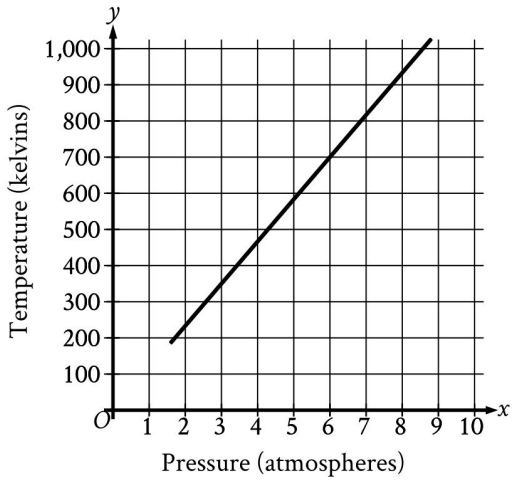
B. $f(x)=\frac{3}{4}x+3$

C. $f(x)=4x-3$

D. $f(x)=4x+3$

1.17 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

SAT Math

Linear Functions 1

Question #	ID

1.18 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

1.19 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.

SAT Math

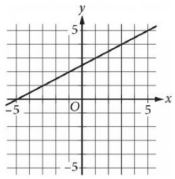
Linear Functions 1

Question # **ID**

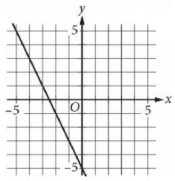
1.20 a8e6bd75

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

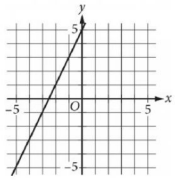
A.



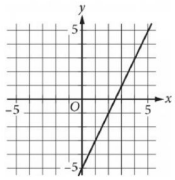
B.



C.



D.



1.21 fe6f9678

For the linear function f, $f(0) = 17$ and $f(1) = 17$. Which equation defines f?

A. $f(x) = \frac{1}{17}$

B. $f(x) = 1$

C. $f(x) = 17$

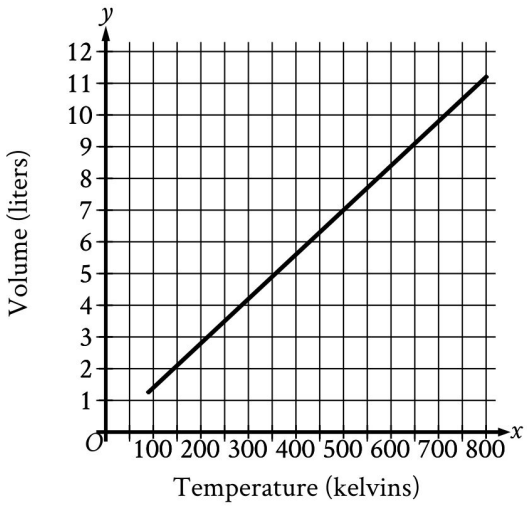
D. $f(x) = 34$

SAT Math

Linear Functions 1

Question #	ID
1.22	930c2990

Hydrogen is placed inside a container and kept at a constant pressure. The graph shows the estimated volume y, in liters, of the hydrogen when its temperature is x kelvins.



What is the estimated volume, in liters, of the hydrogen when its temperature is 500 kelvins?

A. 0

B. $\frac{7}{500}$

C. 7

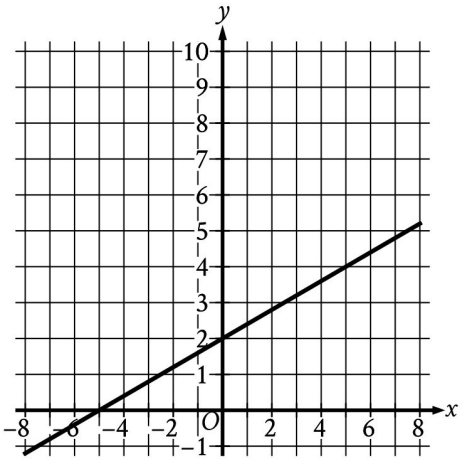
D. $\frac{500}{7}$

SAT Math

Linear Functions 1

Question # **ID**

1.23 d11910d6



The graph of the linear function f is shown. What is the *y*-intercept of the graph of $y = f(x)$?

A. $(-5, 0)$

B. $(2, 0)$

C. $(0, 2)$

D. $(0, -5)$

1.24 fe287f7e

To repair a refrigerator, a technician charges $\$60$ per hour for labor plus $\$120$ for parts. Which function *f* represents the total amount, in dollars, the technician will charge for this job if it takes x hours?

A. $f(x) = x + 120$

B. $f(x) = 60x$

C. $f(x) = 60x + 120$

D. $f(x) = 60x - 120$

1.25 4702da8f

The function f is defined by $f(x) = 80 - 6x$. What is the value of $f(7)$?

A. 13

B. 38

C. 74

D. 81

SAT Math

Linear Functions 1

Question #	ID

1.26 b51c173d

For the linear function f, the graph of $y = f(x)$ in the *xy*-plane has a slope of 2 and has a *y*-intercept at $(0, -5)$. Which equation defines f?

A. $f(x) = \frac{1}{2}x - 5$

B. $f(x) = -\frac{1}{2}x - 5$

C. $f(x) = -2x - 5$

D. $f(x) = 2x - 5$

1.27 27198699

As part of a science project on evaporation, Amaya measured the height of a liquid in a container over a period of time. The function $f(x) = 33 - 0.18x$ gives the estimated height, in centimeters (cm), of the liquid in the container x days after the start of the project. Which of the following is the best interpretation of 33 in this context?

A. The estimated height, in cm, of the liquid at the start of the project

B. The estimated height, in cm, of the liquid at the end of the project

C. The estimated change in the height, in cm, of the liquid each day

D. The estimated number of days for all of the liquid to evaporate

1.28 0d6ab461

Gabriella deposits $\$35$ in a savings account at the end of each week. At the beginning of the 1st week of a year there was $\$600$ in that savings account. How much money, in dollars, will be in the account at the end of the 4th week of that year?

A. 460

B. 635

C. 639

D. 740

1.29 6efcc0a3

In the linear function h, $h(0) = 41$ and $h(1) = 40$. Which equation defines h?

A. $h(x) = -x + 41$

B. $h(x) = -x$

C. $h(x) = -41x$

D. $h(x) = -41$

SAT Math

Linear Functions 1

Question #	ID

1.30 a73a5c22

The function g is defined by $g(x) = 10x + 8$. What is the value of $g(x)$ when $x = 8$?

A. 0

B. 8

C. 10

D. 88

1.31 0eae6be1

The number y is 84 less than the number x. Which equation represents the relationship between x and y?

A. $y = x + 84$

B. $y = \frac{1}{84}x$

C. $y = 84x$

D. $y = x - 84$

1.32 a9039591

x	$f(x)$
0	29
1	32
2	35

For the linear function f, the table shows three values of x and their corresponding values of $f(x)$. Which equation defines $f(x)$?

A. $f(x) = 3x + 29$

B. $f(x) = 29x + 32$

C. $f(x) = 35x + 29$

D. $f(x) = 32x + 35$

1.33 a4d6fbec

If $y = 5x + 10$, what is the value of y when $x = 8$?

SAT Math

Linear Functions 1

Question # **ID**

1.34 a396ed75

For a training program, Juan rides his bike at an average rate of 5.7 minutes per mile. Which function m models the number of minutes it will take Juan to ride x miles at this rate?

A. $m(x) = \frac{x}{5.7}$

B. $m(x) = x + 5.7$

C. $m(x) = x - 5.7$

D. $m(x) = 5.7x$

1.35 1993561d

For the linear function f, the graph of $y = f(x)$ in the *xy*-plane has a slope of $\frac{1}{4}$ and passes through the point $(0, 5)$. Which equation defines f?

A. $f(x) = \frac{1}{4}x + 5$

B. $f(x) = \frac{1}{4}x + \frac{1}{5}$

C. $f(x) = \frac{1}{4}x - \frac{5}{4}$

D. $f(x) = \frac{1}{4}x - 5$

1.36 97eab129

Area (square feet)	Water (gallons)
2,520	4,536
3,780	6,804
5,040	9,072

The buildings of a shopping center are designed to allow water to drain from the roof into gutters on the sides of the buildings. The table shows the relationship between the area x, in square feet, of a roof and the amount of water $f(x)$, in gallons, drained from the roof into the gutters over a certain period of time. Which equation could define f?

A. $f(x) = 0.6x$

B. $f(x) = 1.8x$

C. $f(x) = 2{,}268x$

D. $f(x) = 4{,}536x$

SAT Math

Linear Functions 1

Question #	ID

1.37 9d9fe1e6

In science class, Diego conducted an experiment to learn about evaporation. Diego measured the height of fluid in a beaker over a period of time. The function $f(x) = 39 - 0.18x$ gives the estimated height, $\text{in centimeters } (\text{cm})$, of the fluid in the beaker x days after the start of the experiment. Which of the following is the best interpretation of 39 in this context?

A. The estimated height, in cm, of the fluid at the start of the experiment

B. The estimated height, in cm, of the fluid at the end of the experiment

C. The estimated change in the height, in cm, of the fluid each day

D. The estimated number of days for all the fluid to evaporate

1.38 7b17f86a

$f(x) = x + \frac{8}{11}$ The function f is defined by the given equation. What is the value of $f(x)$ when $x = \frac{3}{11}$?

1.39 7fac16fb

The function f is defined by $f(x) = \frac{7}{10}x + 55$. What is the value of $f(20)$?