Question 1

SAT Math - Linear Functions

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear functions	■■□

ID: 548a4929

The function h is defined by $h(x) = 4x + 28$. The graph of $y = h(x)$ in the xy-plane has an x-intercept at $(a, 0)$ and a y-intercept at $(0, b)$, where a and b are constants. What is the value of $a + b$?

A. 21

B. 28

C. 32

D. 35

Question 2

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear functions	■■□

ID: e62cfe5f

According to a model, the head width, in millimeters, of a worker bumblebee can be estimated by adding 0.6 to four times the body weight of the bee, in grams. According to the model, what would be the head width, in millimeters, of a worker bumblebee that has a body weight of 0.5 grams?

$0.6 + 4x = w$

$0.6 + 4(0.5) = 2.6$ mm

Question 3

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear functions	■■□

ID: a5834ea4

$$f(x) = 39$$

For the given linear function f, which table gives three values of x and their corresponding values of $f(x)$?

A.

x	$f(x)$
0	0
1	0
2	0

B.

x	$f(x)$
0	39
1	39
2	39

C.

x	$f(x)$
0	0
1	39
2	78

D.

x	$f(x)$
0	39
1	0
2	-39

Question 4

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear functions	■■□

ID: 7e3f8363

In the *xy*-plane, the graph of the linear function f contains the points $(0, 3)$ and $(7, 31)$. Which equation defines f, where $y = f(x)$?

$\frac{31-3}{7-0} = \frac{28}{7} = 4$

A. $f(x) = 28x + 34$

B. $f(x) = 3x + 38$

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

D. $f(x) = 7x + 3$

Question 5

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear functions	■■□

ID: c1bd5301

A model predicts that a certain animal weighed 241 pounds when it was born and that the animal gained 3 pounds per day in its first year of life. This model is defined by an equation in the form $f(x) = a + bx$, where $f(x)$ is the predicted weight, in pounds, of the animal x days after it was born,and a and b are constants. What is the value of a ?

$f(x) = 241 + 3x$

$a = 241$

Question 6

Assessment	Test	Domain	Skill	Difficulty
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ID: 620fe971

A team of workers has been moving cargo off of a ship. The equation below models the approximate number of tons of cargo, y, that remains to be moved x hours after the team started working.

$y = 120 - 25x$

The graph of this equation in the xy-plane is a line. What is the best interpretation of the x-intercept in this context?

A. The team will have moved all the cargo in about 4.8 hours.

B. The team has been moving about 4.8 tons of cargo per hour.

C. The team has been moving about 25 tons of cargo per hour.

D. The team started with 120 tons of cargo to move.

Question 7

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear functions	■■□

ID: e470e19d

The function f is defined by $f(x) = 7x - 84$. What is the x-intercept of the graph of $y = f(x)$ in the xy-plane?

A. $(-12, 0)$

B. $(-7, 0)$

C. $(7, 0)$

D. $(12, 0)$

$x = 12$

Question 8

Assessment	Test	Domain	Skill	Difficulty
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ID: f7e39fe9

x	10	15	20	25
$f(x)$	82	137	192	247

The table shows four values of x and their corresponding values of $f(x)$. There is a linear relationship between x and $f(x)$ that is defined by the equation $f(x) = mx - 28$, where m is a constant. What is the value of m ?

$82 = m(10) - 28$

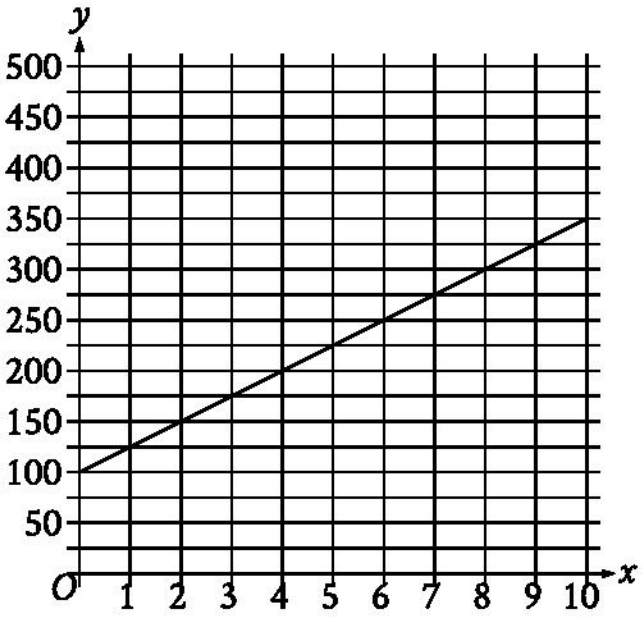
$110 = 10m$

$m = 11$

Question 9

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear functions	■■□

ID: 5cf1bbc9



The graph of the function , f where $y = f(x)$, gives the total cost y, in dollars, for a certain video game system and x games. What is the best interpretation of the slope of the graph in this context?

A. Each game costs $25.

B. The video game system costs $100.

C. The video game system costs $25.

D. Each game costs $100.

Question 10

Assessment	Test	Domain	Skill	Difficulty
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ID: 3e9eaffc

Caleb used juice to make popsicles. The function $f(x) = -5x + 30$ approximates the volume, in fluid ounces, of juice Caleb had remaining after making x popsicles. Which statement is the best interpretation of the *y*-intercept of the graph of $y = f(x)$ in the *xy*-plane in this context?

A. Caleb used approximately 5 fluid ounces of juice for each popsicle.

B. Caleb had approximately 5 fluid ounces of juice when he began to make the popsicles.

C. Caleb had approximately 30 fluid ounces of juice when he began to make the popsicles.

D. Caleb used approximately 30 fluid ounces of juice for each popsicle.

Question 11

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ID: a775af14

In the *xy*-plane, the graph of the linear function f contains the points $(0, 2)$ and $(8, 34)$. Which equation defines f, where $y = f(x)$?

A. $f(x) = 2x + 42$

B. $f(x) = 32x + 36$

C. $f(x) = 4x + 2$

D. $f(x) = 8x + 2$

$\frac{32}{8} = 4$

Question 12

Assessment	Test	Domain	Skill	Difficulty
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ID: dae126d7

The boiling point of water at sea level is 212 degrees Fahrenheit (°F). For every 550 feet above sea level, the boiling point of water is lowered by about 1°F. Which of the following equations can be used to find the boiling point B of water, in °F, x feet above sea level?

A. $B = 550 + \frac{x}{212}$

B. $B = 550 - \frac{x}{212}$

C. $B = 212 + \frac{x}{550}$

D. $B = 212 - \frac{x}{550}$