Question ID 431c3038

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in two variables	■■□

In an article about exercise, it is estimated that a 160-pound adult uses 200 calories for every 30 minutes of hiking and 150 calories for every 30 minutes of bicycling. An adult who weighs 160 pounds has completed 1 hour of bicycling. Based on the article, how many hours should the adult hike to use a total of 1,900 calories from bicycling and hiking?

A. 9.5

B. 8.75

C. 6

D. 4

Question ID 868fc236

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

The table above gives the typical amounts of energy per gram, expressed in both food calories and kilojoules, of the three macronutrients in food. If x food calories is equivalent to k kilojoules, of the following, which best represents the relationship between x and k ?

Energy per Gram of Typical Macronutrients

Macronutrient	Food calories	Kilojoules
Protein	4.0	16.7
Fat	9.0	37.7
Carbohydrate	4.0	16.7

A. $k = 0.24x$

B. $k = 4.2x$

C. $x = 4.2k$

D. $xk = 4.2$

Question ID e8f9e1l7

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear inequalities in one or two variables	■ ■ ■

$$I = \frac{V}{R}$$

The formula above is Ohm's law for an electric circuit with current I, in amperes, potential difference V, in volts, and resistance R, in ohms. A circuit has a resistance of 500 ohms, and its potential difference will be generated by n six-volt batteries that produce a total potential difference of $6n$ volts. If the circuit is to have a current of no more than 0.25 ampere, what is the greatest number, n, of six-volt batteries that can be used?

Question ID ce314070

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in one variable	■■□

ID: ce314070

If $4x - \dfrac{1}{2} = -5$, what is the value of $8x - 1$?

A. 2

B. $-\dfrac{9}{8}$

C. $-\dfrac{5}{2}$

D. -10

Question ID f718c9cf

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Systems of two linear equations in two variables	■■■

ID: f718c9cf

$5x + 14y = 45$ $10x + 7y = 27$ The solution to the given system of equations is (x, y). What is the value of xy?

Question ID 915463e0

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear inequalities in one or two variables	■□□

ID: 915463e0

Normal body temperature for an adult is between $97.8°F$ and $99°F$, inclusive.

If Kevin, an adult male, has a body temperature that is considered to be normal, which of the following could be his body temperature?

A. $96.7°F$

B. $97.6°F$

C. $97.9°F$

D. $99.7°F$

Question ID 520e6f5b

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in two variables	◼☐☐

ID: 520e6f5b

Characteristics for Rock Types

Rock type	Weight per volume (lb/ft^3)	Cost per pound
Basalt	180	$0.18
Granite	165	$0.09
Limestone	120	$0.03
Sandstone	135	$0.22

A city is planning to build a rock retaining wall, a monument, and a garden in a park. The table above shows four rock types that will be considered for use in the project. Also shown for each rock type is its weight per volume, in pounds per cubic foot (lb/ft^3), and the cost per pound, in dollars. The equation $0.03(120w) + 0.18(180z) + 3{,}385.80 = 7{,}576.20$ gives the total cost, in dollars, of the rocks used in the project in terms of the number of ft^3 of limestone, w, and the number of ft^3 of basalt, z. All four rock types are used in the project. Which of the following is the best interpretation of 3,385.80 in this context?

A. The cost of the granite and sandstone needed for the project

B. The cost of the basalt and limestone needed for the project

C. The cost of the basalt needed for the project

D. The cost of the sandstone needed for the project

Question ID 89541f9b

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear inequalities in one or two variables	■ ☐ ☐

ID: 89541f9b

Which of the following ordered pairs (x, y) satisfies the inequality $5x - 3y < 4$?

$(1, 1)(2, 5)(3, 2)$

A. I only

B. II only

C. I and II only

D. I and III only

Question ID ee031767

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Systems of two linear equations in two variables	■☐☐

ID: ee031767

A dance teacher ordered outfits for students for a dance recital. Outfits for boys cost $26, and outfits for girls cost $35. The dance teacher ordered a total of 28 outfits and spent $881. If b represents the number of outfits the dance teacher ordered for boys and g represents the number of outfits the dance teacher ordered for girls, which of the following systems of equations can be solved to find b and g ?

A.
$$26b + 35g = 28$$
$$b + g = 881$$

B.
$$26b + 35g = 881$$
$$b + g = 28$$

C.
$$26g + 35b = 28$$
$$b + g = 881$$

D.
$$26g + 35b = 881$$
$$b + g = 28$$

Question ID 466b87e3

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Systems of two linear equations in two variables	■■■

ID: 466b87e3

$$y = \frac{1}{2}x + 8$$
$$y = cx + 10$$

In the system of equations above, c is a constant. If the system has no solution, what is the value of c?

Question ID aee9fd2d

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in one variable	■■■

ID: aee9fd2d

If $\frac{x+6}{3} = \frac{x+6}{13}$, the value of $x + 6$ is between which of the following pairs of values?

A. -7 and -3

B. -2 and 2

C. 2 and 7

D. 8 and 13

Question ID 84d0d07e

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear inequalities in one or two variables	■ ☐ ☐

A clothing store is having a sale on shirts and pants. During the sale, the cost of each shirt is $15 and the cost of each pair of pants is $25. Geoff can spend at most $120 at the store. If Geoff buys s shirts and p pairs of pants, which of the following must be true?

A. $15s + 25p \leq 120$

B. $15s + 25p \geq 120$

C. $25s + 15p \leq 120$

D. $25s + 15p \geq 120$

Question ID 7a987ae4

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in one variable	■□□

ID: 7a987ae4

If $\dfrac{2n}{5} = 10$, what is the value of $2n - 1$?

A. 24

B. 49

C. 50

D. 99

Question ID 0366d965

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in two variables	■ ■ ■

x	y
3	7
k	11
12	n

The table above shows the coordinates of three points on a line in the xy-plane, where k and n are constants. If the slope of the line is 2, what is the value of $k+n$?

Question ID 963da34c

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear inequalities in one or two variables	■ ■ ■

ID: 963da34c

A shipping service restricts the dimensions of the boxes it will ship for a certain type of service. The restriction states that for boxes shaped like rectangular prisms, the sum of the perimeter of the base of the box and the height of the box cannot exceed 130 inches. The perimeter of the base is determined using the width and length of the box. If a box has a height of 60 inches and its length is 2.5 times the width, which inequality shows the allowable width x, in inches, of the box?

A. $0 < x \le 10$

B. $0 < x \le 11\frac{2}{3}$

C. $0 < x \le 17\frac{1}{2}$

D. $0 < x \le 20$

Question ID b2de69bd

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in two variables	■□□

x	y
1	5
2	7
3	9
4	11

The table above shows some pairs of x values and y values. Which of the following equations could represent the relationship between x and y?

A. $y = 2x + 3$

B. $y = 3x - 2$

C. $y = 4x - 1$

D. $y = 5x$

Question ID 28c2253f

ID: 28c2253f

Characteristics for Rock Types

Rock type	Weight per volume (lb/ft^3)	Cost per pound
Basalt	180	$0.18
Granite	165	$0.09
Limestone	120	$0.03
Sandstone	135	$0.22

A city is planning to build a rock retaining wall, a monument, and a garden in a park. The table above shows four rock types that will be considered for use in the project. Also shown for each rock type is its weight per volume, in pounds per cubic foot (lb/ft^3), and the cost per pound, in dollars. Only basalt, granite, and limestone will be used in the garden. The rocks in the garden will have a total weight of 1,000 pounds. If 330 pounds of granite is used, which of the following equations could show the relationship between the amounts, x and y, in ft^3, for each of the other rock types used?

A. $165x + 180y = 670$

B. $165x + 120y = 1{,}000$

C. $120x + 180y = 670$

D. $120x + 180y = 1{,}000$

Question ID 042aa429

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

ID: 042aa429

If $f(x) = x + 7$ and $g(x) = 7x$, what is the value of $4f(2) - g(2)$?

A. -5

B. 1

C. 22

D. 28

Question ID cd33b015

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Systems of two linear equations in two variables	■☐☐

$$x + y = 20 \quad 2(x + y) + 3y = 85$$

If (x, y) is the solution to the given system of equations, what is the value of y?

A. 10

B. 15

C. 60

D. 65

Question ID e2e3942f

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Systems of two linear equations in two variables	■■■

$$y = 2x + 1$$
$$y = ax - 8$$

In the system of equations above, a is a constant. If the system of equations has no solution, what is the value of a ?

A. $-\dfrac{1}{2}$

B. 0

C. 1

D. 2