Question Bank

Math

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Linear Equations in One Variable

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Question ID 097e10f5

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

ID: 097e10f5

What value of p satisfies the equation $5p + 180 = 250$?

A. 14

B. 65

C. 86

D. 250

Question ID 997bec28

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

ID: 997bec28

The perimeter of an isosceles triangle is 83 inches. Each of the two congruent sides of the triangle has a length of 24 inches. What is the length, in inches, of the third side?

Question ID 6ac23de7

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

ID: 6ac23de7

$$\frac{4x}{5} = 20$$

In the equation above, what is the value of x ?

A. 25

B. 24

C. 16

D. 15

Question ID 7392dfc1

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

ID: 7392dfc1

Which of the following is equivalent to $4x+6=12$?

A. $2x+4=6$

B. $x+3=3$

C. $3x+2=4$

D. $2x+3=6$

Question ID 93954cfa

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

ID: 93954cfa

One pound of grapes costs $2. At this rate, how many dollars will c pounds of grapes cost?

A. $2c$

B. $2+c$

C. $\frac{2}{c}$

D. $\frac{c}{2}$

Question ID 3d04de9c

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

ID: 3d04de9c

A principal used a total of 25 flags that were either blue or yellow for field day. The principal used 20 blue flags. How many yellow flags were used?

A. 5

B. 20

C. 25

D. 30

Question ID 60f71697

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

ID: 60f71697

$$8x = 88$$

What value of x is the solution to the given equation?

A. 11

B. 80

C. 96

D. 704

Question ID 550b352c

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

ID: 550b352c

$10 = 2x + 4$

How many solutions exist to the equation shown above?

A. None

B. Exactly 1

C. Exactly 3

D. Infinitely many

Question ID ed18c4f7

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

ID: ed18c4f7

Cathy has n CDs. Gerry has 3 more than twice the number of CDs that Cathy has. In terms of n, how many CDs does Gerry have?

A. $3n-2$

B. $3n+2$

C. $2n-3$

D. $2n+3$

Question ID 12255364

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

ID: 12255364

A gym charges its members a onetime $36 enrollment fee and a membership fee of $19 per month. If there are no charges other than the enrollment fee and the membership fee, after how many months will a member have been charged a total of $188 at the gym?

A. 4

B. 5

C. 8

D. 10

Question ID d9d83c02

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

ID: d9d83c02

For what value of w does $w-10=2(w+5)$?

A. 5

B. 0

C. -15

D. -20

Question ID 7a987ae4

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

ID: 7a987ae4

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

A. 24

B. 49

C. 50

D. 99

Question ID 9ff10b3b

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

ID: 9ff10b3b

If $\frac{1}{2}x-\frac{1}{6}x=1$, what is the value of x?

A. -4

B. $\frac{1}{3}$

C. 3

D. 6

Question ID 4e77195b

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

ID: 4e77195b

If $2 + x = 60$, what is the value of $16 + 8x$?

Question ID 4f7981a0

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

ID: 4f7981a0

If $3x+2=8$, what is the value of $9x+6$?

Question ID 46f68129

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

ID: 46f68129

A librarian has 43 books to distribute to a group of children. If he gives each child 2 books, he will have 7 books left over. How many children are in the group?

A. 15

B. 18

C. 25

D. 29

Question ID e53870b6

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

ID: e53870b6

$6x + k = 6x + 5$

In the given equation, k is a constant. If the equation has infinitely many solutions, what is the value of k ?

Question ID 70774aa4

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

ID: 70774aa4

If $5x = 20$, what is the value of $15x$?

A. 7

B. 12

C. 23

D. 60

Question ID a9c04a21

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

ID: a9c04a21

What is the solution to the equation $2x + 3 = 7$?

A. 1

B. 1.5

C. 2

D. 4

Question ID 7a5a74a6

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

ID: 7a5a74a6

$3(2x-6)-11=4(x-3)+6$

If x is the solution to the equation above, what is the value of $x-3$?

A. $\frac{23}{2}$

B. $\frac{17}{2}$

C. $\frac{15}{2}$

D. $-\frac{15}{2}$

Question ID aa85b138

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

ID: aa85b138

$2n+6=14$

A tree had a height of 6 feet when it was planted. The equation above can be used to find how many years n it took the tree to reach a height of 14 feet. Which of the following is the best interpretation of the number 2 in this context?

A. The number of years it took the tree to double its height

B. The average number of feet that the tree grew per year

C. The height, in feet, of the tree when the tree was 1 year old

D. The average number of years it takes similar trees to grow 14 feet

Question ID 15daa8d6

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

ID: 15daa8d6

$$2x + 16 = a(x + 8)$$

In the given equation, a is a constant. If the equation has infinitely many solutions, what is the value of a?

Question ID 12ee1edc

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

ID: 12ee1edc

$(b-2)x=8$

In the given equation, b is a constant. If the equation has no solution, what is the value of b ?

A. 2

B. 4

C. 6

D. 10

Question ID 70e29454

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

ID: 70e29454

$a(3-x)-b=-1-2x$

In the equation above, *a* and *b* are constants. If the equation has infinitely many solutions, what are the values of *a* and *b* ?

A. $a=2$ and $b=1$

B. $a=2$ and $b=7$

C. $a=-2$ and $b=5$

D. $a=-2$ and $b=-5$

Question ID f09097b1

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

ID: f09097b1

An agricultural scientist studying the growth of corn plants recorded the height of a corn plant at the beginning of a study and the height of the plant each day for the next 12 days. The scientist found that the height of the plant increased by an average of 1.20 centimeters per day for the 12 days. If the height of the plant on the last day of the study was 36.8 centimeters, what was the height, in centimeters, of the corn plant at the beginning of the study?

Question ID 4f669597

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

ID: 4f669597

$$2(p+1)+8(p-1)=5p$$

What value of p is the solution of the equation above?

Question ID ce314070

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

ID: ce314070

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

A. 2

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

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

D. -10

Question ID 36ab4122

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

ID: 36ab4122

Megan's regular wage at her job is p dollars per hour for the first 8 hours of work in a day plus 1.5 times her regular hourly wage for work in excess of 8 hours that day. On a given day, Megan worked for 10 hours, and her total earnings for that day were $137.50. What is Megan's regular hourly wage?

A. $11.75

B. $12.50

C. $13.25

D. $13.75

Question ID 5ad9eff0

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

ID: 5ad9eff0

The width of a rectangular dance floor is w feet. The length of the floor is 6 feet longer than its width. Which of the following expresses the perimeter, in feet, of the dance floor in terms of w ?

A. $2w+6$

B. $4w+12$

C. w^2+6

D. w^2+6w

Question ID 45bba652

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

ID: 45bba652

If $2(x-5)+3(x-5)=10$, what is the value of $x-5$?

A. 2

B. 5

C. 7

D. 12

Question ID eafdbbbd

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

ID: eafdbbbd

$$\frac{1}{4}(x+5)-\frac{1}{3}(x+5)=-7$$

What value of x is the solution to the given equation?

A. -12

B. -5

C. 79

D. 204

Question ID 2937ef4f

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

ID: 2937ef4f

Hector used a tool called an auger to remove corn from a storage bin at a constant rate. The bin contained 24,000 bushels of corn when Hector began to use the auger. After 5 hours of using the auger, 19,350 bushels of corn remained in the bin. If the auger continues to remove corn at this rate, what is the total number of hours Hector will have been using the auger when 12,840 bushels of corn remain in the bin?

A. 3

B. 7

C. 8

D. 12

Question ID b7e6394d

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

ID: b7e6394d

Alan drives an average of 100 miles each week. His car can travel an average of 25 miles per gallon of gasoline. Alan would like to reduce his weekly expenditure on gasoline by $5. Assuming gasoline costs $4 per gallon, which equation can Alan use to determine how many fewer average miles, m, he should drive each week?

A. $\frac{25}{4}m = 95$

B. $\frac{25}{4}m = 5$

C. $\frac{4}{25}m = 95$

D. $\frac{4}{25}m = 5$

Question ID e6cb2402

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

ID: e6cb2402

$$3(kx+13)=\frac{48}{17}x+36$$

In the given equation, k is a constant. The equation has no solution. What is the value of k?

Question ID ae2287e2

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

ID: ae2287e2

A certain product costs a company $65 to make. The product is sold by a salesperson who earns a commission that is equal to 20% of the sales price of the product. The profit the company makes for each unit is equal to the sales price minus the combined cost of making the product and the commission. If the sales price of the product is $100, which of the following equations gives the number of units, u, of the product the company sold to make a profit of $6,840 ?

A. $(100(1-0.2)-65)u=6{,}840$

B. $(100-65)(1-0.8)u=6{,}840$

C. $0.8(100)-65u=6{,}840$

D. $(0.2(100)+65)u=6{,}840$

Question ID 771bd0ca

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

ID: 771bd0ca

$$5(t+3)-7(t+3)=38$$

What value of t is the solution to the given equation?

Question ID 90095507

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

ID: 90095507

Townsend Realty Group Investments

Property address	Purchase price (dollars)	Monthly rental price (dollars)
Clearwater Lane	128,000	950
Driftwood Drive	176,000	1,310
Edgemont Street	70,000	515
Glenview Street	140,000	1,040
Hamilton Circle	450,000	3,365

The Townsend Realty Group invested in the five different properties listed in the table above. The table shows the amount, in dollars, the company paid for each property and the corresponding monthly rental price, in dollars, the company charges for the property at each of the five locations. Townsend Realty purchased the Glenview Street property and received a 40% discount off the original price along with an additional 20% off the discounted price for purchasing the property in cash. Which of the following best approximates the original price, in dollars, of the Glenview Street property?

A. $350,000

B. $291,700

C. $233,300

D. $175,000

Question ID 0cb57740

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

ID: 0cb57740

Each side of a 30-sided polygon has one of three lengths. The number of sides with length 8 centimeters (cm) is 5 times the number of sides n with length 3 cm. There are 6 sides with length 4 cm. Which equation must be true for the value of n?

A. $5n + 6 = 30$

B. $6n + 6 = 30$

C. $8n + 3n + 4n = 30$

D. $8(5n) + 3n + 4(6) = 30$

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 3f8a701b

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

ID: 3f8a701b

The equation $9x+5=a(x+b)$, where *a* and *b* are constants, has no solutions. Which of the following must be true?

I. $a=9$

II. $b=5$

III. $b \neq \frac{5}{9}$

A. None

B. I only

C. I and II only

D. I and III only

Question ID 628300a9

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

ID: 628300a9

A science teacher is preparing the 5 stations of a science laboratory. Each station will have either Experiment A materials or Experiment B materials, but not both. Experiment A requires 6 teaspoons of salt, and Experiment B requires 4 teaspoons of salt. If x is the number of stations that will be set up for Experiment A and the remaining stations will be set up for Experiment B, which of the following expressions represents the total number of teaspoons of salt required?

A. $5x$

B. $10x$

C. $2x + 20$

D. $10x + 20$