Linear Equations

Foundation to Challenge

Practice should make the test feel easier, not merely familiar.

Work without the answer key first. When you finish, use the QR code on the final page to check your answers online.

FOUNDATION

1 What value of x satisfies the equation below?

$$8x - 13 = 43$$

2 Which value of x satisfies the equation below?

$$19 - 3x = -8$$

A. -9
B. 9
C. $\frac{11}{3}$
D. $-\frac{11}{3}$

3 What is the solution to the equation below?

$$7x - 18 = 3x + 14$$

A. -8
B. 4
C. 8
D. 16

4 What value of x satisfies the equation below?

$$4(2x-5)=3x+25$$

A. 5
B. 8
C. 9
D. 11

5 What value of x satisfies the equation below?

$$\frac{1}{4}(8x+12)=\frac{1}{3}(3x+15)$$

STANDARD

6 If the equation below is true, what is the value of 21x + 15?

$$7x+5=26$$

A. 63
B. 73
C. 78
D. 83

7 How many solutions does the equation below have?

$$4(x+3)-2x=2x+13$$

A. No solution
B. Infinitely many solutions
C. Exactly one solution
D. Exactly two solutions

8 How many solutions does the equation below have?

$$3(2x-5)+4=6x-11$$

A. No solution
B. Infinitely many solutions
C. Exactly one solution
D. Exactly two solutions

9 How many solutions does the equation below have?

$$\frac{5x+10}{2} - x = \frac{x+14}{2}$$

A. No solution
B. Infinitely many solutions
C. Exactly one solution
D. Exactly two solutions

10 In the equation below, a and b are constants. If the equation is true for every value of x, what is the value of a - b?

$$\frac{3}{4}ax - 5 = \frac{9}{2}x + 5b$$

ADVANCED

11 In the equation below, a and b are constants. Which pair of values makes the equation have no solution?

$$ax + 4 = 5(x + b)$$

A. $a = 5$ and $b = \frac{4}{5}$
B. $a = 5$ and $b = 1$
C. $a = 4$ and $b = \frac{4}{5}$
D. $a = 6$ and $b = 1$

12 The system below has solution (x, y). What is the value of x - 2y?

$$11x + 7y = 23$$
$$5x - 9y = 47$$

13 How many solutions does the system below have?

$$4x - 3y = 11$$
$$8x + 5y = 7$$

A. No solution
B. Exactly one solution
C. Exactly two solutions
D. Infinitely many solutions

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

$$-ax + 18y = 7$$
$$6x - 9y = 4$$

15 How many solutions does the system below have?

$$7x - 4y = 9$$
$$21x - 12y = 27$$

A. No solution
B. Exactly one solution
C. Exactly two solutions
D. Infinitely many solutions

16 How many solutions does the system below have?

$$5x + 2y = 8$$
$$15x + 6y = 29$$

A. No solution
B. Exactly one solution
C. Exactly two solutions
D. Infinitely many solutions

17 In the system below, m and n are constants. If the system has infinitely many solutions, what is the value of m + n?

$$4x - 7y = 6$$
$$mx - ny = 24$$

18 In the system below, a and b are constants. If the system has infinitely many solutions, what is the value of a?

$$3x + 8y = a$$
$$bx - 16y = 10$$

A. -20
B. -10
C. -5
D. 5

19 In the system below, m and n are constants. If the system has infinitely many solutions, what is the value of m/n?

$$mx + 12y = 18$$
$$2x + ny = 6$$

A. $\frac{1}{3}$
B. $\frac{2}{3}$
C. $\frac{3}{2}$
D. 2

FINISHED?

Check your answers online.

The public practice PDF contains questions only. The answer check lives on the website so you can review your score, identify the kind of mistake you made, and move to the next resource.

ANSWER CHECK

Linear Equations

Scan the QR code or visit:

https://aryalanupme.github.io/sat-linear-equations.html

If you are stuck on one question, note the question number and the approach you tried before checking another solution.

Independent resource