

# Question ID 696e199b

| Assessment | Test | Domain        | Skill                                                                         | Difficulty |
|------------|------|---------------|-------------------------------------------------------------------------------|------------|
| SAT        | Math | Advanced Math | Nonlinear equations in one variable and systems of equations in two variables | Medium     |

ID: 696e199b

$$\frac{(x+9)(x-9)}{x+9} = 7$$

What is the solution to the given equation?

- A. 7
- B. 9
- C. 16
- D. 63

# Question ID 6fbfbe0d

| Assessment | Test | Domain        | Skill                                                                         | Difficulty |
|------------|------|---------------|-------------------------------------------------------------------------------|------------|
| SAT        | Math | Advanced Math | Nonlinear equations in one variable and systems of equations in two variables | Medium     |

ID: 6fbfbe0d

$$x = 8a(b + 9)$$

The given equation relates the positive numbers  $a$ ,  $b$ , and  $x$ . Which equation correctly expresses  $a$  in terms of  $b$  and  $x$ ?

- A.  $a = \frac{x}{8} - (b + 9)$
- B.  $a = \frac{x}{8(b+9)}$
- C.  $a = \frac{8(b+9)}{x}$
- D.  $a = 8x(b + 9)$

# Question ID 5bfaf155

| Assessment | Test | Domain        | Skill                                                                         | Difficulty |
|------------|------|---------------|-------------------------------------------------------------------------------|------------|
| SAT        | Math | Advanced Math | Nonlinear equations in one variable and systems of equations in two variables | Medium     |

ID: 5bfaf155

$$p = 20 + \frac{16}{n}$$

The given equation relates the numbers  $p$  and  $n$ , where  $n$  is not equal to 0 and  $p > 20$ . Which equation correctly expresses  $n$  in terms of  $p$ ?

- A.  $n = \frac{p-20}{16}$
- B.  $n = \frac{p}{16} + 20$
- C.  $n = \frac{p}{16} - 20$
- D.  $n = \frac{16}{p-20}$

# Question ID 408d3547

| Assessment | Test | Domain        | Skill                                                                         | Difficulty |
|------------|------|---------------|-------------------------------------------------------------------------------|------------|
| SAT        | Math | Advanced Math | Nonlinear equations in one variable and systems of equations in two variables | Medium     |

ID: 408d3547

$$(5x + 4)(2x - 5) = 0$$

Which of the following is a solution to the given equation?

- A.  $-\frac{5}{2}$
- B.  $-\frac{5}{4}$
- C.  $-\frac{4}{5}$
- D.  $-\frac{2}{5}$

# Question ID 1c7b6b0a

| Assessment | Test | Domain        | Skill                                                                         | Difficulty |
|------------|------|---------------|-------------------------------------------------------------------------------|------------|
| SAT        | Math | Advanced Math | Nonlinear equations in one variable and systems of equations in two variables | Medium     |

ID: 1c7b6b0a

$$p = \frac{k}{4j+9}$$

The given equation relates the distinct positive numbers  $p$ ,  $k$ , and  $j$ . Which equation correctly expresses  $4j + 9$  in terms of  $p$  and  $k$ ?

- A.  $4j + 9 = \frac{k}{p}$
- B.  $4j + 9 = kp$
- C.  $4j + 9 = k - p$
- D.  $4j + 9 = \frac{p}{k}$

# Question ID b63f5259

| Assessment | Test | Domain        | Skill                                                                         | Difficulty |
|------------|------|---------------|-------------------------------------------------------------------------------|------------|
| SAT        | Math | Advanced Math | Nonlinear equations in one variable and systems of equations in two variables | Medium     |

ID: b63f5259

$$x^2 - 5x - 24 = 0$$

What is the sum of the solutions to the given equation?

# Question ID 753ebb31

| Assessment | Test | Domain        | Skill                                                                         | Difficulty |
|------------|------|---------------|-------------------------------------------------------------------------------|------------|
| SAT        | Math | Advanced Math | Nonlinear equations in one variable and systems of equations in two variables | Medium     |

ID: 753ebb31

$$5x^2 - 37x - 24 = 0$$

What is the positive solution to the given equation?

- A.  $\frac{3}{5}$
- B. 3
- C. 8
- D. 37

# Question ID e9e5f5d5

| Assessment | Test | Domain        | Skill                                                                         | Difficulty |
|------------|------|---------------|-------------------------------------------------------------------------------|------------|
| SAT        | Math | Advanced Math | Nonlinear equations in one variable and systems of equations in two variables | Medium     |

ID: e9e5f5d5

$$7x^2 - 20x - 32 = 0$$

What is the positive solution to the given equation?

# Question ID c33339b0

| Assessment | Test | Domain        | Skill                                                                         | Difficulty |
|------------|------|---------------|-------------------------------------------------------------------------------|------------|
| SAT        | Math | Advanced Math | Nonlinear equations in one variable and systems of equations in two variables | Medium     |

ID: c33339b0

The equation  $12t + b = c$  relates the variables  $t$ ,  $b$ , and  $c$ . Which of the following correctly expresses the value of  $c - b$  in terms of  $t$ ?

- A.  $\frac{t}{12}$
- B.  $t$
- C.  $t + \frac{1}{12}$
- D.  $12t$

# Question ID 247b1034

| Assessment | Test | Domain        | Skill                                                                         | Difficulty |
|------------|------|---------------|-------------------------------------------------------------------------------|------------|
| SAT        | Math | Advanced Math | Nonlinear equations in one variable and systems of equations in two variables | Medium     |

ID: 247b1034

$$\begin{aligned}y &= 4x \\ y &= x^2 - 12\end{aligned}$$

A solution to the given system of equations is  $(x, y)$ , where  $x > 0$ . What is the value of  $x$ ?

# Question ID 7b2d91a2

| Assessment | Test | Domain        | Skill                                                                         | Difficulty |
|------------|------|---------------|-------------------------------------------------------------------------------|------------|
| SAT        | Math | Advanced Math | Nonlinear equations in one variable and systems of equations in two variables | Medium     |

ID: 7b2d91a2

$$\frac{-54}{w} = 6$$

What is the solution to the given equation?

Question ID bc0575e7

| Assessment | Test | Domain        | Skill                                                                         | Difficulty |
|------------|------|---------------|-------------------------------------------------------------------------------|------------|
| SAT        | Math | Advanced Math | Nonlinear equations in one variable and systems of equations in two variables | Medium     |

ID: bc0575e7

$w^2 + 12w - 40 = 0$

Which of the following is a solution to the given equation?

- A.  $6 - 2\sqrt{19}$
- B.  $2\sqrt{19}$
- C.  $\sqrt{19}$
- D.  $-6 + 2\sqrt{19}$

Question ID cb03e399

| Assessment | Test | Domain        | Skill                                                                         | Difficulty |
|------------|------|---------------|-------------------------------------------------------------------------------|------------|
| SAT        | Math | Advanced Math | Nonlinear equations in one variable and systems of equations in two variables | Medium     |

ID: cb03e399

$$y = (x - 2)(x + 4)$$
$$y = 6x - 12$$

Which ordered pair  $(x, y)$  is the solution to the given system of equations?

- A.  $(0, 2)$
- B.  $(-4, 2)$
- C.  $(2, 0)$
- D.  $(2, -4)$

# Question ID 4f36c8ca

| Assessment | Test | Domain        | Skill                                                                         | Difficulty |
|------------|------|---------------|-------------------------------------------------------------------------------|------------|
| SAT        | Math | Advanced Math | Nonlinear equations in one variable and systems of equations in two variables | Medium     |

ID: 4f36c8ca

If  $|4x - 4| = 112$ , what is the positive value of  $x - 1$ ?

Question ID 5ee494b6

| Assessment | Test | Domain        | Skill                                                                         | Difficulty |
|------------|------|---------------|-------------------------------------------------------------------------------|------------|
| SAT        | Math | Advanced Math | Nonlinear equations in one variable and systems of equations in two variables | Medium     |

ID: 5ee494b6

$$\begin{aligned}x^2 + y + 10 &= 10 \\ 8x + 16 - y &= 0\end{aligned}$$

The solution to the given system of equations is  $(x, y)$ . What is the value of  $x$ ?

- A.  $-16$
- B.  $-4$
- C.  $2$
- D.  $8$

# Question ID 22a0e553

| Assessment | Test | Domain        | Skill                                                                         | Difficulty |
|------------|------|---------------|-------------------------------------------------------------------------------|------------|
| SAT        | Math | Advanced Math | Nonlinear equations in one variable and systems of equations in two variables | Medium     |

ID: 22a0e553

$$v = -\frac{w}{150x}$$

The given equation relates the distinct positive numbers  $v$ ,  $w$ , and  $x$ . Which equation correctly expresses  $w$  in terms of  $v$  and  $x$ ?

A.  $w = -150vx$

B.  $w = -\frac{150v}{x}$

C.  $w = -\frac{x}{150v}$

D.  $w = v + 150x$

# Question ID 430e5f54

| Assessment | Test | Domain        | Skill                                                                         | Difficulty |
|------------|------|---------------|-------------------------------------------------------------------------------|------------|
| SAT        | Math | Advanced Math | Nonlinear equations in one variable and systems of equations in two variables | Medium     |

ID: 430e5f54

$$\frac{1}{7b} = \frac{11x}{y}$$

The given equation relates the positive numbers  $b$ ,  $x$ , and  $y$ . Which equation correctly expresses  $x$  in terms of  $b$  and  $y$ ?

A.  $x = \frac{7by}{11}$

B.  $x = y - 77b$

C.  $x = \frac{y}{77b}$

D.  $x = 77by$

# Question ID 036e585d

| Assessment | Test | Domain        | Skill                                                                         | Difficulty |
|------------|------|---------------|-------------------------------------------------------------------------------|------------|
| SAT        | Math | Advanced Math | Nonlinear equations in one variable and systems of equations in two variables | Medium     |

ID: 036e585d

$$3x(x - 4)(x + 5) = 0$$

What is one of the solutions to the given equation?

- A.  $-4$
- B.  $0$
- C.  $3$
- D.  $5$

# Question ID 9658700e

| Assessment | Test | Domain        | Skill                                                                         | Difficulty |
|------------|------|---------------|-------------------------------------------------------------------------------|------------|
| SAT        | Math | Advanced Math | Nonlinear equations in one variable and systems of equations in two variables | Medium     |

ID: 9658700e

$$(d - 30)(d + 30) - 7 = -7$$

What is a solution to the given equation?

# Question ID 92b3b634

| Assessment | Test | Domain        | Skill                                                                         | Difficulty |
|------------|------|---------------|-------------------------------------------------------------------------------|------------|
| SAT        | Math | Advanced Math | Nonlinear equations in one variable and systems of equations in two variables | Medium     |

ID: 92b3b634

$$z^2 + 10z - 24 = 0$$

What is one of the solutions to the given equation?

# Question ID e669571f

| Assessment | Test | Domain        | Skill                                                                         | Difficulty |
|------------|------|---------------|-------------------------------------------------------------------------------|------------|
| SAT        | Math | Advanced Math | Nonlinear equations in one variable and systems of equations in two variables | Medium     |

ID: e669571f

$$P = N(19 - C)$$

The given equation relates the positive numbers  $P$ ,  $N$ , and  $C$ . Which equation correctly expresses  $C$  in terms of  $P$  and  $N$ ?

- A.  $C = \frac{19+P}{N}$
- B.  $C = \frac{19-P}{N}$
- C.  $C = 19 + \frac{P}{N}$
- D.  $C = 19 - \frac{P}{N}$

# Question ID e0cc40e8

| Assessment | Test | Domain        | Skill                                                                         | Difficulty |
|------------|------|---------------|-------------------------------------------------------------------------------|------------|
| SAT        | Math | Advanced Math | Nonlinear equations in one variable and systems of equations in two variables | Medium     |

ID: e0cc40e8

$38x^2 = 38(9)$

What is the negative solution to the given equation?

# Question ID 0f587cc6

| Assessment | Test | Domain        | Skill                                                                         | Difficulty |
|------------|------|---------------|-------------------------------------------------------------------------------|------------|
| SAT        | Math | Advanced Math | Nonlinear equations in one variable and systems of equations in two variables | Medium     |

ID: 0f587cc6

$$-4x^2 - 7x = -36$$

What is the positive solution to the given equation?

- A.  $\frac{7}{4}$
- B.  $\frac{9}{4}$
- C. 4
- D. 7

# Question ID c7528626

| Assessment | Test | Domain        | Skill                                                                         | Difficulty |
|------------|------|---------------|-------------------------------------------------------------------------------|------------|
| SAT        | Math | Advanced Math | Nonlinear equations in one variable and systems of equations in two variables | Medium     |

ID: c7528626

If  $\frac{42}{x} = 7x$ , what is the value of  $7x^2$ ?

- A. 6
- B. 7
- C. 42
- D. 294

# Question ID 28a0ca32

| Assessment | Test | Domain        | Skill                                                                         | Difficulty |
|------------|------|---------------|-------------------------------------------------------------------------------|------------|
| SAT        | Math | Advanced Math | Nonlinear equations in one variable and systems of equations in two variables | Medium     |

ID: 28a0ca32

$$14j + 5k = m$$

The given equation relates the numbers  $j$ ,  $k$ , and  $m$ . Which equation correctly expresses  $k$  in terms of  $j$  and  $m$ ?

- A.  $k = \frac{m-14j}{5}$
- B.  $k = \frac{1}{5}m - 14j$
- C.  $k = \frac{14j-m}{5}$
- D.  $k = 5m - 14j$

# Question ID f20cc110

| Assessment | Test | Domain        | Skill                                                                         | Difficulty |
|------------|------|---------------|-------------------------------------------------------------------------------|------------|
| SAT        | Math | Advanced Math | Nonlinear equations in one variable and systems of equations in two variables | Medium     |

ID: f20cc110

$$\frac{55}{x+6} = x$$

What is the positive solution to the given equation?

# Question ID baa012ad

| Assessment | Test | Domain        | Skill                                                                         | Difficulty |
|------------|------|---------------|-------------------------------------------------------------------------------|------------|
| SAT        | Math | Advanced Math | Nonlinear equations in one variable and systems of equations in two variables | Medium     |

ID: baa012ad

$$7m = 5(n + p)$$

The given equation relates the positive numbers  $m$ ,  $n$ , and  $p$ . Which equation correctly gives  $n$  in terms of  $m$  and  $p$ ?

- A.  $n = \frac{5p}{7m}$
- B.  $n = \frac{7m}{5} - p$
- C.  $n = 5(7m) + p$
- D.  $n = 7m - 5 - p$

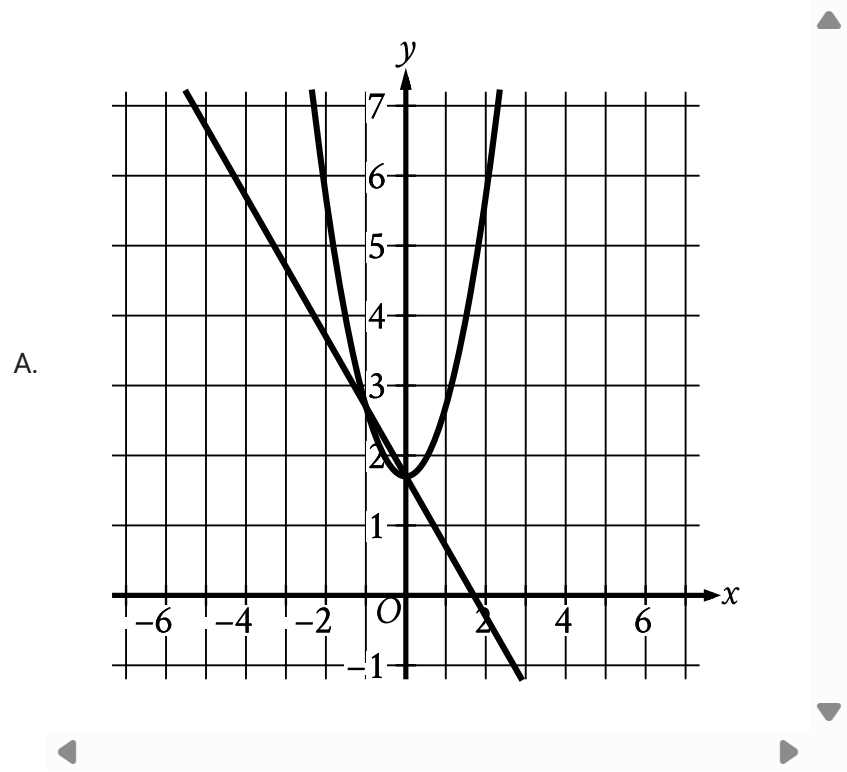
Question ID eab050e1

| Assessment | Test | Domain        | Skill                                                                         | Difficulty |
|------------|------|---------------|-------------------------------------------------------------------------------|------------|
| SAT        | Math | Advanced Math | Nonlinear equations in one variable and systems of equations in two variables | Medium     |

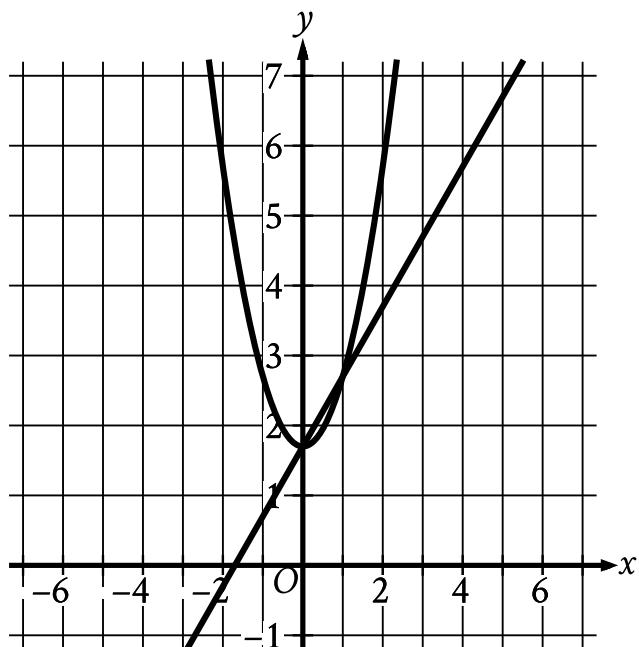
ID: eab050e1

$y = x^2 + 1.7$   
 $y = 1.7 - x$

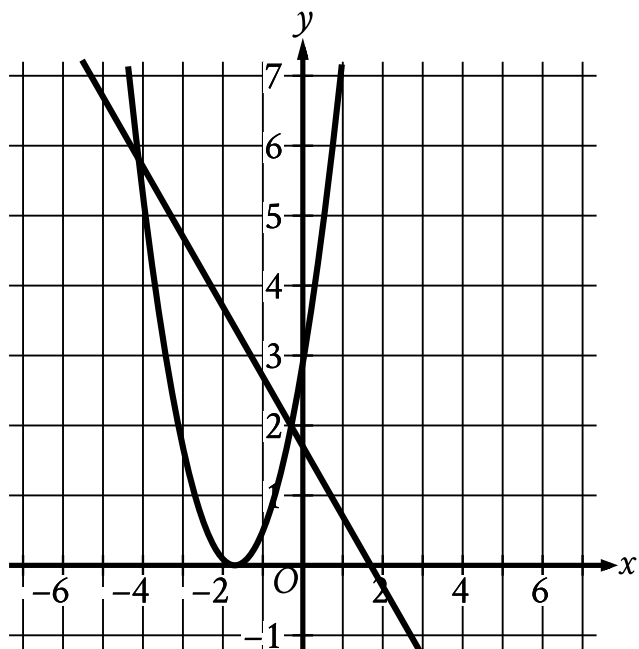
Which graph represents the given system of equations?



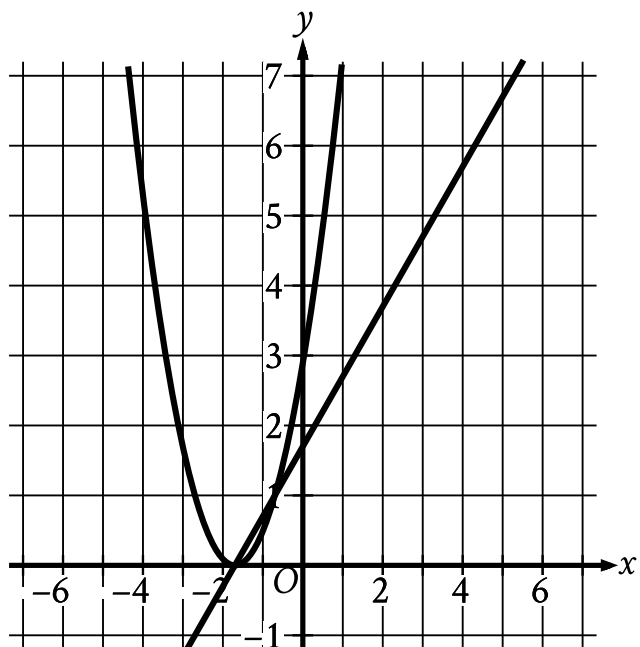
B.



C.



D.



# Question ID c6e98bfc

| Assessment | Test | Domain        | Skill                                                                         | Difficulty |
|------------|------|---------------|-------------------------------------------------------------------------------|------------|
| SAT        | Math | Advanced Math | Nonlinear equations in one variable and systems of equations in two variables | Medium     |

ID: c6e98bfc

$$b - 72 = \frac{x}{y}$$

The given equation relates the positive numbers  $b$ ,  $x$ , and  $y$ . Which equation correctly expresses  $x$  in terms of  $b$  and  $y$ ?

- A.  $x = \frac{b-72}{y}$
- B.  $x = by - 72$
- C.  $x = \frac{by-72}{y}$
- D.  $x = by - 72y$

# Question ID 0106a3a1

| Assessment | Test | Domain        | Skill                                                                         | Difficulty |
|------------|------|---------------|-------------------------------------------------------------------------------|------------|
| SAT        | Math | Advanced Math | Nonlinear equations in one variable and systems of equations in two variables | Medium     |

ID: 0106a3a1

$x^2 = -841$

How many distinct real solutions does the given equation have?

- A. Exactly one
- B. Exactly two
- C. Infinitely many
- D. Zero

# Question ID 8f89f154

| Assessment | Test | Domain        | Skill                                                                         | Difficulty |
|------------|------|---------------|-------------------------------------------------------------------------------|------------|
| SAT        | Math | Advanced Math | Nonlinear equations in one variable and systems of equations in two variables | Medium     |

ID: 8f89f154

If  $4\sqrt{2x} = 16$ , what is the value of  $6x$ ?

- A. 24
- B. 48
- C. 72
- D. 96

# Question ID 42c3e1dd

| Assessment | Test | Domain        | Skill                                                                         | Difficulty |
|------------|------|---------------|-------------------------------------------------------------------------------|------------|
| SAT        | Math | Advanced Math | Nonlinear equations in one variable and systems of equations in two variables | Medium     |

ID: 42c3e1dd

$$y = x^2 + 14x + 48$$
$$x + 8 = 11$$

The solution to the given system of equations is  $(x, y)$ . What is the value of  $y$ ?

# Question ID 0daafba7

| Assessment | Test | Domain        | Skill                                                                         | Difficulty |
|------------|------|---------------|-------------------------------------------------------------------------------|------------|
| SAT        | Math | Advanced Math | Nonlinear equations in one variable and systems of equations in two variables | Medium     |

ID: 0daafba7

$$x^2 - 12x + 27 = 0$$

How many distinct real solutions does the given equation have?

- A. Exactly two
- B. Exactly one
- C. Zero
- D. Infinitely many