

Question ID a4c7e214

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Advanced Math	Nonlinear equations in one variable and systems of equations in two variables	<div><div></div><div></div><div></div></div>

ID: a4c7e214

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

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 d8afa04f

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Advanced Math	Nonlinear equations in one variable and systems of equations in two variables	<div><div></div><div></div><div></div></div>

ID: d8afa04f

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

What is the positive solution to the given equation?

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

Question ID d5884aab

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Advanced Math	Nonlinear equations in one variable and systems of equations in two variables	<div><div></div><div></div><div></div></div>

ID: d5884aab

$5(x + 7) = 15(x - 17)(x + 7)$
What is the sum of the solutions to the given equation?

Question ID a505a103

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Advanced Math	Nonlinear equations in one variable and systems of equations in two variables	<div><div></div><div></div><div></div></div>

ID: a505a103

$$y = 18$$
$$y = -3(x - 18)^2 + 15$$

If the given equations are graphed in the xy -plane, at how many points do the graphs of the equations intersect?

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

Question ID de064610

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Advanced Math	Nonlinear equations in one variable and systems of equations in two variables	<div><div></div><div></div><div></div></div>

ID: de064610

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

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 cb0a29df

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Advanced Math	Nonlinear equations in one variable and systems of equations in two variables	<div><div></div><div></div><div></div></div>

ID: cb0a29df

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

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 fc135182

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Advanced Math	Nonlinear equations in one variable and systems of equations in two variables	<div><div></div><div></div><div></div></div>

ID: fc135182

$$|x - 9| + 45 = 63$$

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

Question ID b3abe641

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Advanced Math	Nonlinear equations in one variable and systems of equations in two variables	<div><div></div><div></div><div></div></div>

ID: b3abe641

The solutions to $x^2 + 6x + 7 = 0$ are r and s , where $r < s$. The solutions to $x^2 + 8x + 8 = 0$ are t and u , where $t < u$. The solutions to $x^2 + 14x + c = 0$, where c is a constant, are $r + t$ and $s + u$. What is the value of c ?

Question ID 31305921

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Advanced Math	Nonlinear equations in one variable and systems of equations in two variables	<div><div></div><div></div><div></div></div>

ID: 31305921

$$8x + y = -11$$
$$2x^2 = y + 341$$

The graphs of the equations in the given system of equations intersect at the point (x, y) in the xy -plane. What is a possible value of x ?

- A. -15
- B. -11
- C. 2
- D. 8

Question ID 31368b54

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Advanced Math	Nonlinear equations in one variable and systems of equations in two variables	<div><div></div><div></div><div></div></div>

ID: 31368b54

$$y + k = x + 26$$

$$y - k = x^2 - 5x$$

In the given system of equations, k is a constant. The system has exactly one distinct real solution. What is the value of k ?

Question ID cb1a6c01

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Advanced Math	Nonlinear equations in one variable and systems of equations in two variables	<div><div></div><div></div><div></div></div>

ID: cb1a6c01

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

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 d42a332a

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Advanced Math	Nonlinear equations in one variable and systems of equations in two variables	<div><div></div><div></div><div></div></div>

ID: d42a332a

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

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 b6b7302e

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Advanced Math	Nonlinear equations in one variable and systems of equations in two variables	<div><div></div><div></div><div></div></div>

ID: b6b7302e

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

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

Question ID 79e90fe0

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Advanced Math	Nonlinear equations in one variable and systems of equations in two variables	<div><div></div><div></div><div></div></div>

ID: 79e90fe0

$| -5x + 13 | = 73$

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

- A. $-\frac{146}{5}$
- B. -12
- C. 0
- D. $\frac{26}{5}$

Question ID 2053d7ae

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Advanced Math	Nonlinear equations in one variable and systems of equations in two variables	<div><div></div><div></div><div></div></div>

ID: 2053d7ae

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

What is one of the solutions to the given equation?

Question ID 0b733fe3

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Advanced Math	Nonlinear equations in one variable and systems of equations in two variables	<div><div></div><div></div><div></div></div>

ID: 0b733fe3

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

What is the positive solution to the given equation?

Question ID 8fac5670

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Advanced Math	Nonlinear equations in one variable and systems of equations in two variables	<div><div></div><div></div><div></div></div>

ID: 8fac5670

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

How many distinct real solutions does the given equation have?

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

Question ID f16b622c

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Advanced Math	Nonlinear equations in one variable and systems of equations in two variables	<div><div></div><div></div><div></div></div>

ID: f16b622c

$$\frac{14x}{7y} = 2\sqrt{w + 19}$$

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

- A. $w = \sqrt{\frac{x}{y}} - 19$
- B. $w = \sqrt{\frac{28x}{14y}} - 19$
- C. $w = \left(\frac{x}{y}\right)^2 - 19$
- D. $w = \left(\frac{28x}{14y}\right)^2 - 19$

Question ID 882e1392

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Advanced Math	Nonlinear equations in one variable and systems of equations in two variables	<div><div></div><div></div><div></div></div>

ID: 882e1392

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

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 a0923004

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Advanced Math	Nonlinear equations in one variable and systems of equations in two variables	<div><div></div><div></div><div></div></div>

ID: a0923004

$$2x^2 - 8x - 7 = 0$$

One solution to the given equation can be written as $\frac{8-\sqrt{k}}{4}$, where k is a constant. What is the value of k ?

Question ID e65a96bc

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Advanced Math	Nonlinear equations in one variable and systems of equations in two variables	<div><div></div><div></div><div></div></div>

ID: e65a96bc

$x^2 - 2x - 9 = 0$

One solution to the given equation can be written as $1 + \sqrt{k}$, where k is a constant. What is the value of k ?

- A. 8
- B. 10
- C. 20
- D. 40

Question ID 7bbcc18f

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Advanced Math	Nonlinear equations in one variable and systems of equations in two variables	<div><div></div><div></div><div></div></div>

ID: 7bbcc18f

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

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 42a24450

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Advanced Math	Nonlinear equations in one variable and systems of equations in two variables	<div><div></div><div></div><div></div></div>

ID: 42a24450

$$64x^2 - (16a + 4b)x + ab = 0$$

In the given equation, a and b are positive constants. The sum of the solutions to the given equation is $k(4a + b)$, where k is a constant. What is the value of k ?

Question ID af94bc02

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Advanced Math	Nonlinear equations in one variable and systems of equations in two variables	<div><div></div><div></div><div></div></div>

ID: af94bc02

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

What is the solution to the given equation?

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

Question ID 1ad081fd

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Advanced Math	Nonlinear equations in one variable and systems of equations in two variables	<div><div></div><div></div><div></div></div>

ID: 1ad081fd

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

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

Question ID 7b2f17ba

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Advanced Math	Nonlinear equations in one variable and systems of equations in two variables	<div><div></div><div></div><div></div></div>

ID: 7b2f17ba

$x^2 = -841$

How many distinct real solutions does the given equation have?

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

Question ID 04e3c183

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Advanced Math	Nonlinear equations in one variable and systems of equations in two variables	<div><div></div><div></div><div></div></div>

ID: 04e3c183

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

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

Question ID fd76bbbb

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Advanced Math	Nonlinear equations in one variable and systems of equations in two variables	<div><div></div><div></div><div></div></div>

ID: fd76bbbb

$38x^2 = 38(9)$

What is the negative solution to the given equation?

Question ID e45c168b

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Advanced Math	Nonlinear equations in one variable and systems of equations in two variables	<div><div></div><div></div><div></div></div>

ID: e45c168b

$$-2x^2 + 20x + c = 0$$

In the given equation, c is a constant. The equation has exactly one solution. What is the value of c ?

- A. -68
- B. -50
- C. -32
- D. 0

Question ID 17c92e06

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Advanced Math	Nonlinear equations in one variable and systems of equations in two variables	<div><div></div><div></div><div></div></div>

ID: 17c92e06

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

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 e4f33b6e

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Advanced Math	Nonlinear equations in one variable and systems of equations in two variables	<div><div></div><div></div><div></div></div>

ID: e4f33b6e

In the xy -plane, a line with equation $2y = c$ for some constant c intersects a parabola at exactly one point. If the parabola has equation $y = -2x^2 + 9x$, what is the value of c ?

Question ID a678d2b8

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Advanced Math	Nonlinear equations in one variable and systems of equations in two variables	<div><div></div><div></div><div></div></div>

ID: a678d2b8

- In the xy -plane, the graph of the equation $y = -x^2 + 9x - 100$ intersects the line $y = c$ at exactly one point. What is the value of c ?
- A. $-\frac{481}{4}$
 - B. -100
 - C. $-\frac{319}{4}$
 - D. $-\frac{9}{2}$

Question ID d4f08434

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Advanced Math	Nonlinear equations in one variable and systems of equations in two variables	<div><div></div><div></div><div></div></div>

ID: d4f08434

$$x^2 - 40x - 10 = 0$$

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

- A. 0
- B. 5
- C. 10
- D. 40

Question ID db0b6fc5

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Advanced Math	Nonlinear equations in one variable and systems of equations in two variables	<div><div></div><div></div><div></div></div>

ID: db0b6fc5

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

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 316b2564

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Advanced Math	Nonlinear equations in one variable and systems of equations in two variables	<div><div></div><div></div><div></div></div>

ID: 316b2564

$$\frac{12}{n} - \frac{2}{t} = -\frac{2}{w}$$

The given equation relates the variables n , t , and w , where $n > 0$, $t > 0$, and $w > t$. Which expression is equivalent to n ?

- A. $12tw$
- B. $6(t - w)$
- C. $\frac{w-t}{6tw}$
- D. $\frac{6tw}{w-t}$

Question ID 67e0e5fb

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Advanced Math	Nonlinear equations in one variable and systems of equations in two variables	<div><div></div><div></div><div></div></div>

ID: 67e0e5fb

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

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

Question ID 9445ac1c

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Advanced Math	Nonlinear equations in one variable and systems of equations in two variables	<div><div></div><div></div><div></div></div>

ID: 9445ac1c

$$y = 2x^2 - 21x + 64$$
$$y = 3x + a$$

In the given system of equations, a is a constant. The graphs of the equations in the given system intersect at exactly one point, (x, y) , in the xy -plane. What is the value of x ?

- A. -8
- B. -6
- C. 6
- D. 8

Question ID a4178bb7

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Advanced Math	Nonlinear equations in one variable and systems of equations in two variables	<div><div></div><div></div><div></div></div>

ID: a4178bb7

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

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 6902b109

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Advanced Math	Nonlinear equations in one variable and systems of equations in two variables	<div><div></div><div></div><div></div></div>

ID: 6902b109

$$\begin{aligned}y &= -2.5 \\ y &= x^2 + 8x + k\end{aligned}$$

In the given system of equations, k is a positive integer constant. The system has no real solutions. What is the least possible value of k ?

Question ID 1cab3587

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Advanced Math	Nonlinear equations in one variable and systems of equations in two variables	<div><div></div><div></div><div></div></div>

ID: 1cab3587

$(x - 47)^2 = 1$

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

Question ID e5de1695

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Advanced Math	Nonlinear equations in one variable and systems of equations in two variables	<div><div></div><div></div><div></div></div>

ID: e5de1695

$$x - 29 = (x - a)(x - 29)$$

Which of the following are solutions to the given equation, where a is a constant and $a > 30$?

- I. a
- II. $a + 1$
- III. 29
- A. I and II only
- B. I and III only
- C. II and III only
- D. I, II, and III

Question ID 34395f35

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Advanced Math	Nonlinear equations in one variable and systems of equations in two variables	<div><div></div><div></div><div></div></div>

ID: 34395f35

$$14j + 5k = m$$

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 ccb8cab1

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Advanced Math	Nonlinear equations in one variable and systems of equations in two variables	<div><div></div><div></div><div></div></div>

ID: ccb8cab1

In the xy -plane, a line with equation $2y = 4.5$ intersects a parabola at exactly one point. If the parabola has equation $y = -4x^2 + bx$, where b is a positive constant, what is the value of b ?

Question ID 900c3f03

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Advanced Math	Nonlinear equations in one variable and systems of equations in two variables	<div><div></div><div></div><div></div></div>

ID: 900c3f03

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

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 4c8b75ab

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Advanced Math	Nonlinear equations in one variable and systems of equations in two variables	<div><div></div><div></div><div></div></div>

ID: 4c8b75ab

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

What is one of the solutions to the given equation?

- A. ~~−4~~
- B. 0
- C. 3
- D. 5

Question ID 0a69855a

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Advanced Math	Nonlinear equations in one variable and systems of equations in two variables	<div><div></div><div></div><div></div></div>

ID: 0a69855a

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 e00ebccc

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Advanced Math	Nonlinear equations in one variable and systems of equations in two variables	<div><div></div><div></div><div></div></div>

ID: e00ebccc

$$y = x + 9$$
$$y = x^2 + 16x + 63$$

A solution to the given system of equations is (x, y) . What is the greatest possible value of x ?

- A. -6
- B. 7
- C. 9
- D. 63

Question ID 5b85333b

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Advanced Math	Nonlinear equations in one variable and systems of equations in two variables	<div><div></div><div></div><div></div></div>

ID: 5b85333b

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

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

Question ID d0cb954c

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Advanced Math	Nonlinear equations in one variable and systems of equations in two variables	<div><div></div><div></div><div></div></div>

ID: d0cb954c

$$x(x + 1) - 56 = 4x(x - 7)$$

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

Question ID 511d1d81

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Advanced Math	Nonlinear equations in one variable and systems of equations in two variables	<div><div></div><div></div><div></div></div>

ID: 511d1d81

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

What is a solution to the given equation?

Question ID b4379e93

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Advanced Math	Nonlinear equations in one variable and systems of equations in two variables	<div><div></div><div></div><div></div></div>

ID: b4379e93

$$\begin{aligned}x^2 + y + 7 &= 7 \\ 20x + 100 - y &= 0\end{aligned}$$

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

Question ID 8294e05a

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Advanced Math	Nonlinear equations in one variable and systems of equations in two variables	<div><div></div><div></div><div></div></div>

ID: 8294e05a

$$\sqrt{k - x} = 58 - x$$

In the given equation, k is a constant. The equation has exactly one real solution. What is the minimum possible value of $4k$?

Question ID a0296e89

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Advanced Math	Nonlinear equations in one variable and systems of equations in two variables	<div><div></div><div></div><div></div></div>

ID: a0296e89

Which quadratic equation has no real solutions?

- A. $x^2 + 14x - 49 = 0$
- B. $x^2 - 14x + 49 = 0$
- C. $5x^2 - 14x - 49 = 0$
- D. $5x^2 - 14x + 49 = 0$

Question ID a740186b

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Advanced Math	Nonlinear equations in one variable and systems of equations in two variables	<div><div></div><div></div><div></div></div>

ID: a740186b

$$\frac{20}{p} = \frac{20}{q} - \frac{20}{r} - \frac{20}{s}$$

The given equation relates the positive variables p , q , r , and s . Which of the following is equivalent to q ?

- A. $p + r + s$
- B. $20(p + r + s)$
- C. $\frac{prs}{pr+ps+rs}$
- D. $\frac{prs}{20p+20r+20s}$

Question ID 2d5ffbc6

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Advanced Math	Nonlinear equations in one variable and systems of equations in two variables	<div><div></div><div></div><div></div></div>

ID: 2d5ffbc6

$$\begin{aligned}y &= -1.5 \\ y &= x^2 + 8x + a\end{aligned}$$

In the given system of equations, a is a positive constant. The system has exactly one distinct real solution. What is the value of a ?

Question ID 6b439b01

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Advanced Math	Nonlinear equations in one variable and systems of equations in two variables	<div><div></div><div></div><div></div></div>

ID: 6b439b01

$$x^2 + y + 10 = 10$$

$$8x + 16 - y = 0$$

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 Odd61384

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Advanced Math	Nonlinear equations in one variable and systems of equations in two variables	<div><div></div><div></div><div></div></div>

ID: Odd61384

If $3x^2 - 18x - 15 = 0$, what is the value of $x^2 - 6x$?

Question ID 3aaea513

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Advanced Math	Nonlinear equations in one variable and systems of equations in two variables	<div><div></div><div></div><div></div></div>

ID: 3aaea513

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

What is the positive solution to the given equation?

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

Question ID 1fbc1bcd

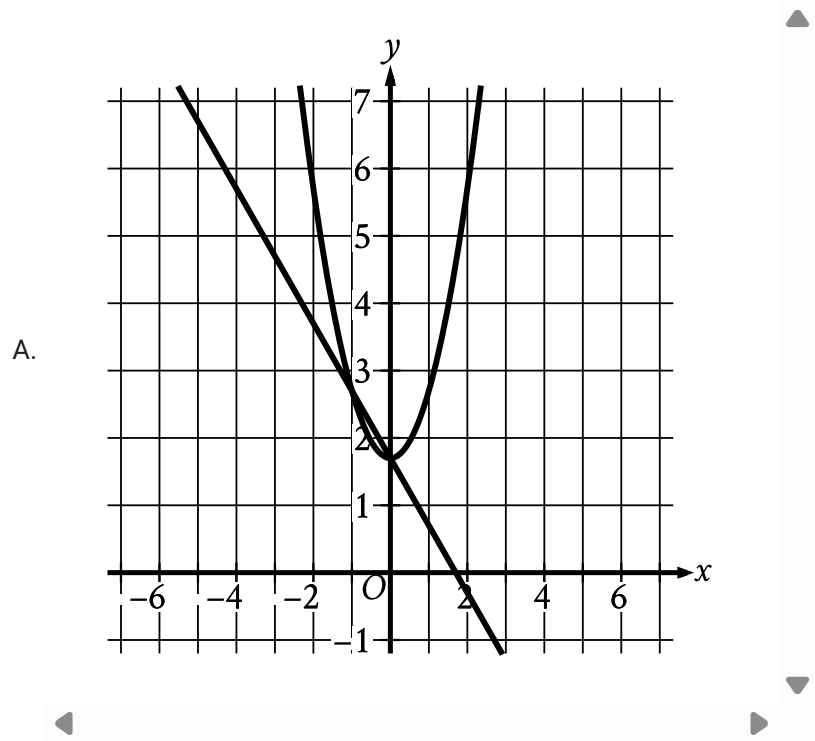
Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Advanced Math	Nonlinear equations in one variable and systems of equations in two variables	<div></div> <div></div> <div></div>

ID: 1fbc1bcd

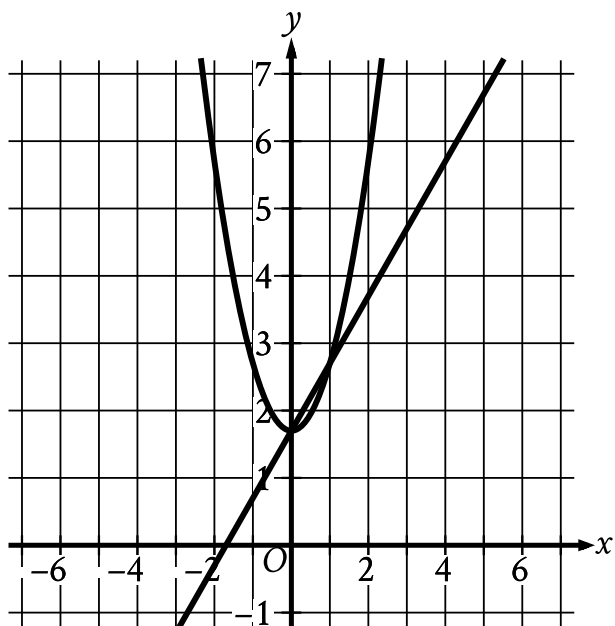
$y = x^2 + 1.7$

$y = 1.7 - x$

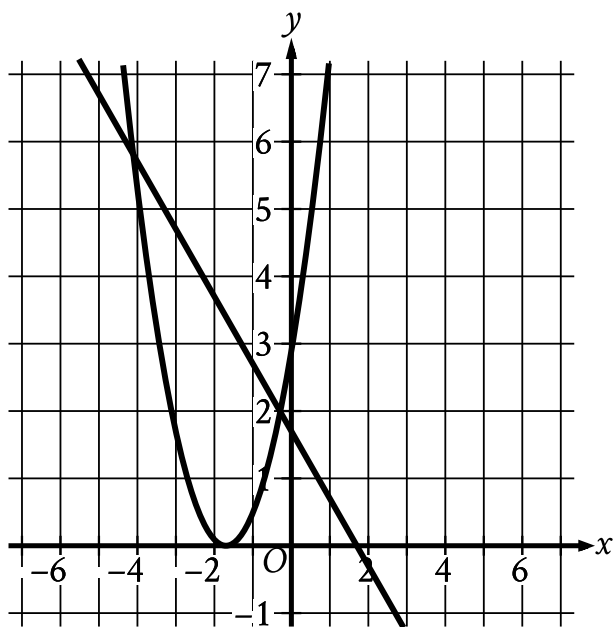
Which graph represents the given system of equations?



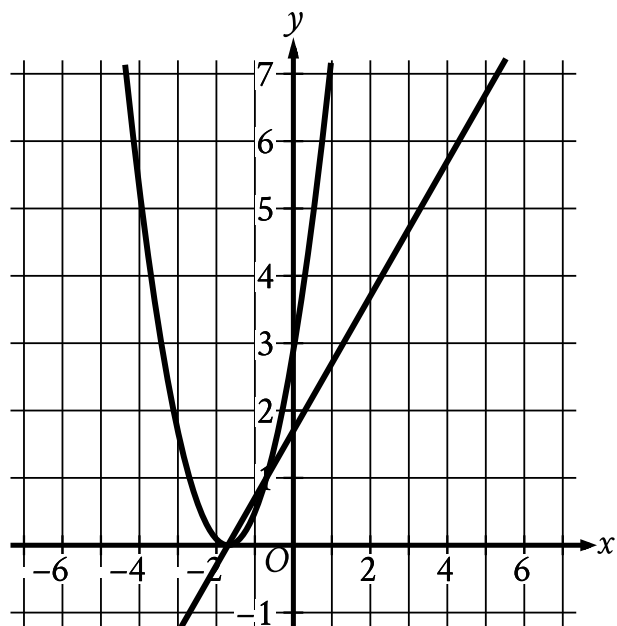
B.



C.



D.



Question ID cfe8bac6

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Advanced Math	Nonlinear equations in one variable and systems of equations in two variables	<div><div></div><div></div><div></div></div>

ID: cfe8bac6

$$57x^2 + (57b + a)x + ab = 0$$

In the given equation, a and b are positive constants. The product of the solutions to the given equation is kab , where k is a constant. What is the value of k ?

- A. $\frac{1}{57}$
- B. $\frac{1}{19}$
- C. 1
- D. 57