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	Hard

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	Hard

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	Hard

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	Hard

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	Hard

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	Hard

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	Hard

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	Hard

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	Hard

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	Hard

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	Hard

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	Hard

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	Hard

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	Hard

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	Hard

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	Hard

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	Hard

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	Hard

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. $w =$ msup $- 19$

D. $w =$ msup $- 19$

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	Hard

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	Hard

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	Hard

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	Hard

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	Hard

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	Hard

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	Hard

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	Hard

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	Hard

ID: 04e3c183

$$y = 4x$$
$$y = x^2 - 12$$

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	Hard

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	Hard

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	Hard

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	Hard

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	Hard

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	Hard

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	Hard

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	Hard

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	Hard

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	Hard

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	Hard

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	Hard

ID: 6902b109

$$y = -2.5$$
$$y = x^2 + 8x + k$$

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	Hard

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	Hard

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	Hard

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	Hard

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	Hard

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	Hard

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	Hard

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	Hard

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	Hard

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	Hard

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	Hard

ID: 511d1d81

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

What is a solution to the given equation?

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	Hard

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

Question ID 1fbc1bcd

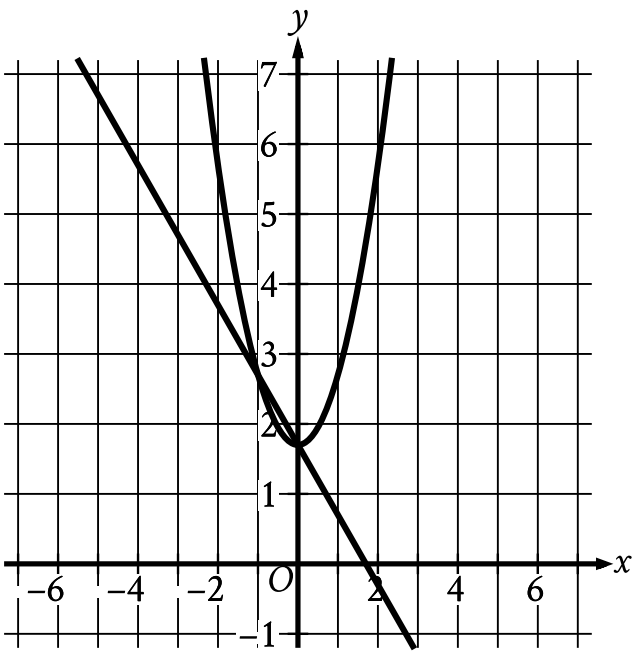
Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Advanced Math	Nonlinear equations in one variable and systems of equations in two variables	Hard

ID: 1fbc1bcd

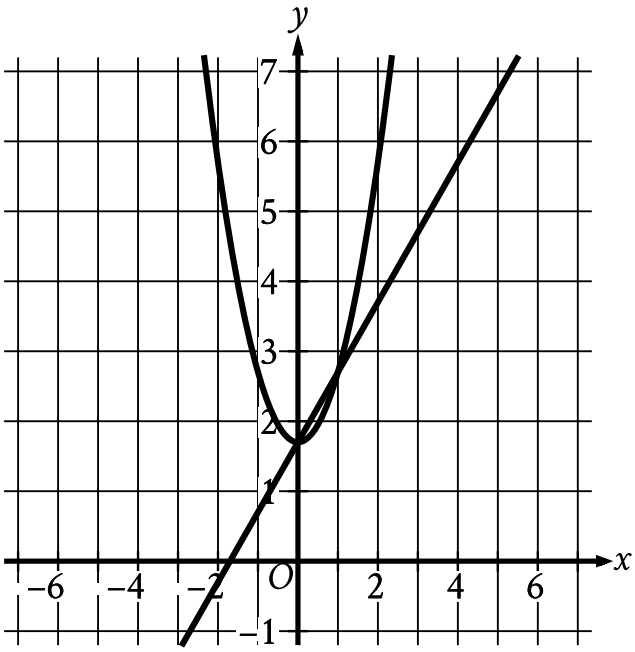
$$y = x^2 + 1.7$$
$$y = 1.7 - x$$

Which graph represents the given system of equations?

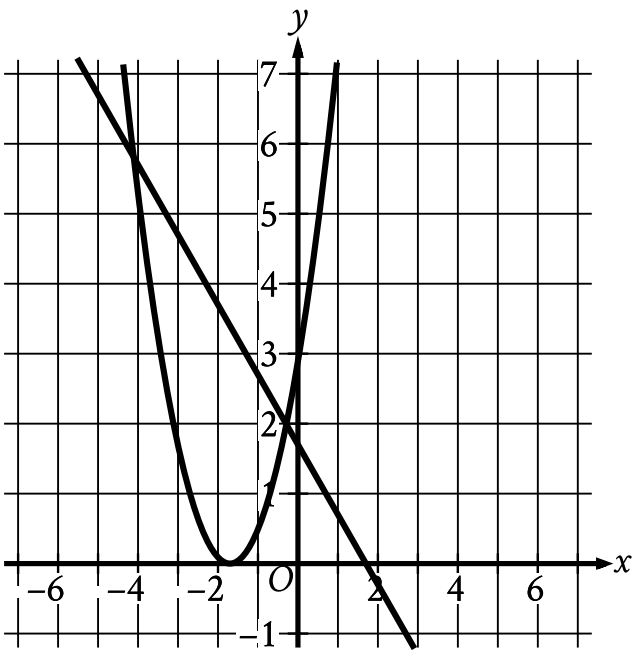
A.



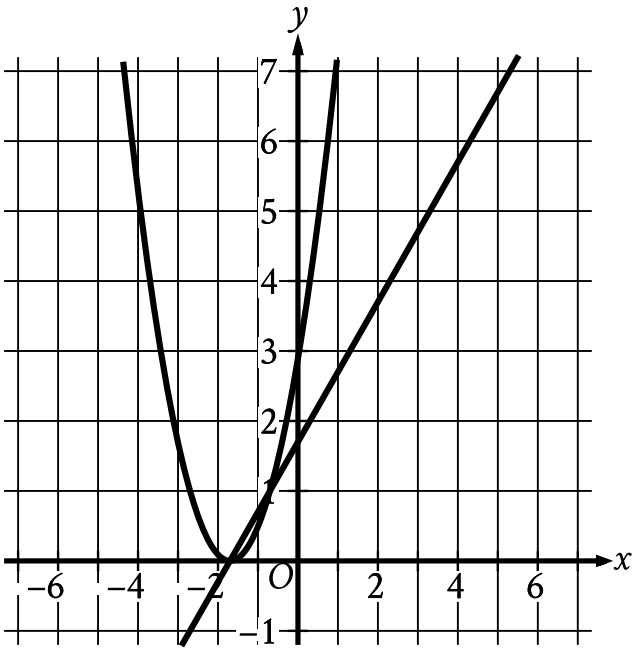
B.



C.



D.



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	Hard

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 0dd61384

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

ID: 0dd61384

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

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	Hard

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 2d5ffbc6

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

ID: 2d5ffbc6

$$y = -1.5$$
$$y = x^2 + 8x + a$$

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 a740186b

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

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 a0296e89

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

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 8294e05a

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

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 b4379e93

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

ID: b4379e93

$$x^2 + y + 7 = 7$$
$$20x + 100 - y = 0$$

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