Question ID 1d9a6078

Assessment	Test	Domain	Skill	Difficulty
PSAT/NMSQT & PSAT 10	Math	Algebra	Systems of two linear equations in two variables	

ID: 1d9a6078

$$48x - 72y = 30y + 24$$
$$ry = \frac{1}{6} - 16x$$

In the given system of equations, r is a constant. If the system has no solution, what is the value of r?

Question ID 9d50428c

Assessment	Test	Domain	Skill	Difficulty
PSAT/NMSQT & PSAT 10	Math	Algebra	Systems of two linear equations in two variables	

ID: 9d50428c

Which of the following systems of linear equations has no solution?

A. $x = 3$
$y = 5$

B. $y = 6x + 6$
$y = 5x + 6$

C. $y = 16x + 3$
$y = 16x + 19$

D. $y = 5$
$y = 5x + 5$

Question ID edd6232c

Assessment	Test	Domain	Skill	Difficulty
PSAT/NMSQT & PSAT 10	Math	Algebra	Systems of two linear equations in two variables	

ID: edd6232c

$$5x + 14y = 45$$
$$10x + 7y = 27$$

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

Question ID 25f7665c

Assessment	Test	Domain	Skill	Difficulty
PSAT/NMSQT & PSAT 10	Math	Algebra	Systems of two linear equations in two variables	

ID: 25f7665c

$$\frac{3}{2}y - \frac{1}{4}x = \frac{2}{3} - \frac{3}{2}y$$
$$\frac{1}{2}x + \frac{3}{2} = py + \frac{9}{2}$$

In the given system of equations, p is a constant. If the system has no solution, what is the value of p?

Question ID 2b225f92

Assessment	Test	Domain	Skill	Difficulty
PSAT/NMSQT & PSAT 10	Math	Algebra	Systems of two linear equations in two variables	

ID: 2b225f92

A bus traveled on the highway and on local roads to complete a trip of 160 miles. The trip took 4 hours. The bus traveled at an average speed of 55 miles per hour (mph) on the highway and an average speed of 25 mph on local roads. If x is the time, in hours, the bus traveled on the highway and y is the time, in hours, it traveled on local roads, which system of equations represents this situation?

A. $55x + 25y = 4$
$x + y = 160$

B. $55x + 25y = 160$
$x + y = 4$

C. $25x + 55y = 4$
$x + y = 160$

D. $25x + 55y = 160$
$x + y = 4$

Question ID b2d554a4

Assessment	Test	Domain	Skill	Difficulty
PSAT/NMSQT & PSAT 10	Math	Algebra	Systems of two linear equations in two variables	

ID: b2d554a4

$$48x - 64y = 48y + 24$$
$$ry = \frac{1}{8} - 12x$$

In the given system of equations, r is a constant. If the system has no solution, what is the value of r?

Question ID f55b70f4

Assessment	Test	Domain	Skill	Difficulty
PSAT/NMSQT & PSAT 10	Math	Algebra	Systems of two linear equations in two variables	

ID: f55b70f4

A wire with a length of 106 inches is cut into two parts. One part has a length of x inches, and the other part has a length of y inches. The value of x is 6 more than 4 times the value of y. What is the value of x?

A. 25

B. 28

C. 56

D. 86

Question ID 46be5680

Assessment	Test	Domain	Skill	Difficulty
PSAT/NMSQT & PSAT 10	Math	Algebra	Systems of two linear equations in two variables	

ID: 46be5680

Store A sells raspberries for $\$5.50$ per pint and blackberries for $\$3.00$ per pint. Store B sells raspberries for $\$6.50$ per pint and blackberries for $\$8.00$ per pint. A certain purchase of raspberries and blackberries would cost $\$37.00$ at Store A or $\$66.00$ at Store B. How many pints of blackberries are in this purchase?

A. 4

B. 5

C. 8

D. 12

Question ID 4ca7a295

Assessment	Test	Domain	Skill	Difficulty
PSAT/NMSQT & PSAT 10	Math	Algebra	Systems of two linear equations in two variables	

ID: 4ca7a295

$$-12x + 14y = 36$$
$$-6x + 7y = -18$$

How many solutions does the given system of equations have?

A. Exactly one

B. Exactly two

C. Infinitely many

D. Zero

Question ID 2d54169d

Assessment	Test	Domain	Skill	Difficulty
PSAT/NMSQT & PSAT 10	Math	Algebra	Systems of two linear equations in two variables	

ID: 2d54169d

A piece of wire with a length of 32 inches is cut into two parts. One part has a length of x inches, and the other part has a length of y inches. The value of x is 4 more than 3 times the value of y. What is the value of x?

Question ID df3b20f0

Assessment	Test	Domain	Skill	Difficulty
PSAT/NMSQT & PSAT 10	Math	Algebra	Systems of two linear equations in two variables	

ID: df3b20f0

$$y = 4x + 1$$
$$4y = 15x - 8$$

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

Question ID 1ef88808

Assessment	Test	Domain	Skill	Difficulty
PSAT/NMSQT & PSAT 10	Math	Algebra	Systems of two linear equations in two variables	

ID: 1ef88808

$$x + 3 = -2y + 5$$
$$x - 3 = 2y + 7$$

The solution to the given system of equations is (x, y). What is the value of $2x$?

A. -2

B. 6

C. 12

D. 24

Question ID 1a85e94a

Assessment	Test	Domain	Skill	Difficulty
PSAT/NMSQT & PSAT 10	Math	Algebra	Systems of two linear equations in two variables	

ID: 1a85e94a

$$8x + 7y = 9$$
$$24x + 21y = 27$$

For each real number r, which of the following points lies on the graph of each equation in the *xy*-plane for the given system?

A. $\left(r, -\frac{8r}{7} + \frac{9}{7}\right)$

B. $\left(-\frac{8r}{7} + \frac{9}{7}, r\right)$

C. $\left(-\frac{8r}{7} + 9, \frac{8r}{7} + 27\right)$

D. $\left(\frac{r}{3} + 9, -\frac{r}{3} + 27\right)$

Question ID 73da0278

Assessment	Test	Domain	Skill	Difficulty
PSAT/NMSQT & PSAT 10	Math	Algebra	Systems of two linear equations in two variables	

ID: 73da0278

The combined original price for a mirror and a vase is $\$60$. After a 25% discount to the mirror and a 45% discount to the vase are applied, the combined sale price for the two items is $\$39$. Which system of equations gives the original price m, in dollars, of the mirror and the original price v, in dollars, of the vase?

A. $m + v = 60$
$0.55m + 0.75v = 39$

B. $m + v = 60$
$0.45m + 0.25v = 39$

C. $m + v = 60$
$0.75m + 0.55v = 39$

D. $m + v = 60$
$0.25m + 0.45v = 39$

Question ID 58d03572

Assessment	Test	Domain	Skill	Difficulty
PSAT/NMSQT & PSAT 10	Math	Algebra	Systems of two linear equations in two variables	

ID: 58d03572

$$\frac{7}{8}y - \frac{5}{8}x = \frac{4}{7} - \frac{7}{8}y$$
$$\frac{5}{4}x + \frac{7}{4} = py + \frac{15}{4}$$

In the given system of equations, p is a constant. If the system has no solution, what is the value of p?

Question ID 652cb78d

Assessment	Test	Domain	Skill	Difficulty
PSAT/NMSQT & PSAT 10	Math	Algebra	Systems of two linear equations in two variables	

ID: 652cb78d

$$2x + 3y = 7$$
$$10x + 15y = 35$$

For each real number r, which of the following points lies on the graph of each equation in the *xy*-plane for the given system?

A. $\left(\frac{r}{5} + 7, -\frac{r}{5} + 35\right)$

B. $\left(-\frac{3r}{2} + \frac{7}{2}, r\right)$

C. $\left(r, \frac{2r}{3} + \frac{7}{3}\right)$

D. $\left(r, -\frac{3r}{2} + \frac{7}{2}\right)$

Question ID 551de84f

Assessment	Test	Domain	Skill	Difficulty
PSAT/NMSQT & PSAT 10	Math	Algebra	Systems of two linear equations in two variables	

ID: 551de84f

Which of the following systems of linear equations has no solution?

A. $y = 6x + 3$
$y = 6x + 9$

B. $y = 10$
$y = 10x + 10$

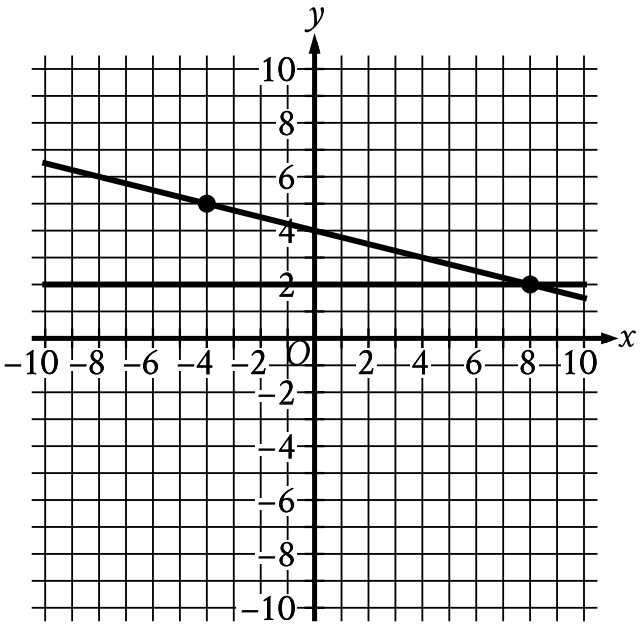
C. $y = 14x + 14$
$y = 10x + 14$

D. $x = 3$
$y = 10$

Question ID ffe7118f

Assessment	Test	Domain	Skill	Difficulty
PSAT/NMSQT & PSAT 10	Math	Algebra	Systems of two linear equations in two variables	

ID: ffe7118f



If a new graph of three linear equations is created using the system of equations shown and the equation $x + 4y = -16$, how many solutions (x, y) will the resulting system of three equations have?

A. Zero

B. Exactly one

C. Exactly two

D. Infinitely many

Question ID cf9a5572

Assessment	Test	Domain	Skill	Difficulty
PSAT/NMSQT & PSAT 10	Math	Algebra	Systems of two linear equations in two variables	

ID: cf9a5572

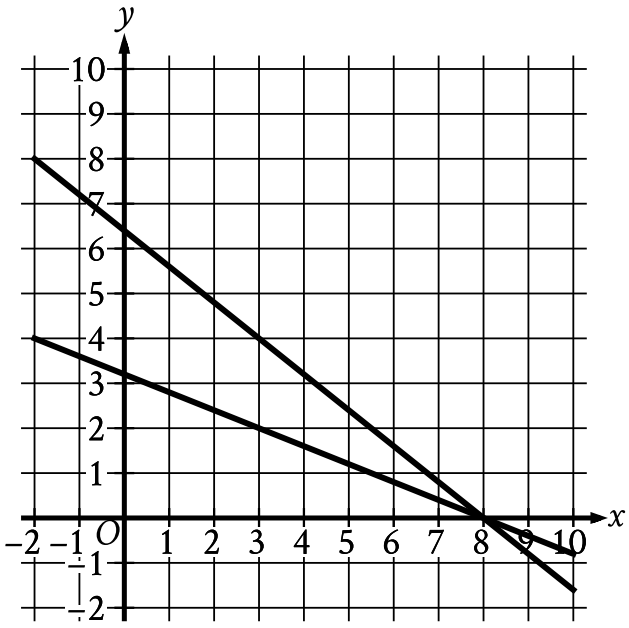
$$4x - 6y = 10y + 2$$
$$ty = \frac{1}{2} + 2x$$

In the given system of equations, t is a constant. If the system has no solution, what is the value of t?

Question ID 5d5d0dc7

Assessment	Test	Domain	Skill	Difficulty
PSAT/NMSQT & PSAT 10	Math	Algebra	Systems of two linear equations in two variables	

ID: 5d5d0dc7



What system of linear equations is represented by the lines shown?

A. $8x + 4y = 32$
$-10x - 4y = -64$

B. $8x - 4y = 32$
$-10x + 4y = -64$

C. $4x - 10y = 32$
$-8x + 10y = -64$

D. $4x + 10y = 32$
$-8x - 10y = -64$

Question ID 6bee1d56

Assessment	Test	Domain	Skill	Difficulty
PSAT/NMSQT & PSAT 10	Math	Algebra	Systems of two linear equations in two variables	

ID: 6bee1d56

$$-15x + 25y = 65$$

One of the two equations in a system of linear equations is given. The system has infinitely many solutions. Which of the following could be the second equation in the system?

A. $12x + 20y = 52$

B. $12x + 20y = -52$

C. $-12x + 20y = 52$

D. $-12x + 20y = -52$

Question ID 12a4a51b

Assessment	Test	Domain	Skill	Difficulty
PSAT/NMSQT & PSAT 10	Math	Algebra	Systems of two linear equations in two variables	

ID: 12a4a51b

A proposal for a new library was included on an election ballot. A radio show stated that 3 times as many people voted in favor of the proposal as people who voted against it. A social media post reported that $15{,}000$ more people voted in favor of the proposal than voted against it. Based on these data, how many people voted against the proposal?

A. $7{,}500$

B. $15{,}000$

C. $22{,}500$

D. $45{,}000$

Question ID f08b80b6

Assessment	Test	Domain	Skill	Difficulty
PSAT/NMSQT & PSAT 10	Math	Algebra	Systems of two linear equations in two variables	

ID: f08b80b6

$$5y = 10x + 11$$
$$-5y = 5x - 21$$

The solution to the given system of equations is (x, y). What is the value of $30x$?

Question ID 3f613d99

Assessment	Test	Domain	Skill	Difficulty
PSAT/NMSQT & PSAT 10	Math	Algebra	Systems of two linear equations in two variables	

ID: 3f613d99

$$x + 2y = 6$$
$$x - 2y = 4$$

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

A. 2.5

B. 5

C. 6

D. 10

Question ID 8bc32738

Assessment	Test	Domain	Skill	Difficulty
PSAT/NMSQT & PSAT 10	Math	Algebra	Systems of two linear equations in two variables	

ID: 8bc32738

$$y = \frac{1}{3}x - 14$$
$$y = -x + 18$$

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

Question ID 6f9dabea

Assessment	Test	Domain	Skill	Difficulty
PSAT/NMSQT & PSAT 10	Math	Algebra	Systems of two linear equations in two variables	

ID: 6f9dabea

$$24x + y = 48$$
$$6x + y = 72$$

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

Question ID 85059bec

Assessment	Test	Domain	Skill	Difficulty
PSAT/NMSQT & PSAT 10	Math	Algebra	Systems of two linear equations in two variables	

ID: 85059bec

$$6 + 7r = pw$$
$$7r - 5w = 5w + 11$$

In the given system of equations, p is a constant. If the system has no solution, what is the value of p?

Question ID c55794d8

Assessment	Test	Domain	Skill	Difficulty
PSAT/NMSQT & PSAT 10	Math	Algebra	Systems of two linear equations in two variables	

ID: c55794d8

A sample of a certain alloy has a total mass of 50.0 grams and is 50.0% silicon by mass. The sample was created by combining two pieces of different alloys. The first piece was 30.0% silicon by mass and the second piece was 80.0% silicon by mass. What was the mass, in grams, of the silicon in the second piece?

A. 9.0

B. 16.0

C. 20.0

D. 30.0

Question ID b781b8cc

Assessment	Test	Domain	Skill	Difficulty
PSAT/NMSQT & PSAT 10	Math	Algebra	Systems of two linear equations in two variables	

ID: b781b8cc

$$4x - 9y = 9y + 5$$
$$hy = 2 + 4x$$

In the given system of equations, h is a constant. If the system has no solution, what is the value of h?

A. -9

B. 0

C. 9

D. 18

Question ID 8d0a9044

Assessment	Test	Domain	Skill	Difficulty
PSAT/NMSQT & PSAT 10	Math	Algebra	Systems of two linear equations in two variables	

ID: 8d0a9044

Two customers purchased the same kind of bread and eggs at a store. The first customer paid 12.45 dollars for 1 loaf of bread and 2 dozen eggs. The second customer paid 19.42 dollars for 4 loaves of bread and 1 dozen eggs. What is the cost, in dollars, of 1 dozen eggs?

A. 3.77

B. 3.88

C. 4.15

D. 4.34

Question ID fb272309

Assessment	Test	Domain	Skill	Difficulty
PSAT/NMSQT & PSAT 10	Math	Algebra	Systems of two linear equations in two variables	

ID: fb272309

$$ax + by = 72$$
$$6x + 2by = 56$$

In the given system of equations, a and b are constants. The graphs of these equations in the *xy*-plane intersect at the point $(4, y)$. What is the value of a?

A. 3

B. 4

C. 6

D. 14

Question ID a8c506d4

Assessment	Test	Domain	Skill	Difficulty
PSAT/NMSQT & PSAT 10	Math	Algebra	Systems of two linear equations in two variables	

ID: a8c506d4

$$y = 6x + 18$$

One of the equations in a system of two linear equations is given. The system has no solution. Which equation could be the second equation in the system?

A. $-6x + y = 18$

B. $-6x + y = 22$

C. $-12x + y = 36$

D. $-12x + y = 18$

Question ID 73d572f1

Assessment	Test	Domain	Skill	Difficulty
PSAT/NMSQT & PSAT 10	Math	Algebra	Systems of two linear equations in two variables	

ID: 73d572f1

$$(x-2)-4(y+7)=117$$
$$(x-2)+4(y+7)=442$$

The solution to the given system of equations is (x, y). What is the value of $6(x-2)$?