Question ID d9d67aa9

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Algebra	Linear equations in two variables	Medium

ID: d9d67aa9

The *y*-intercept of the graph of $y = -6x - 32$ in the *xy*-plane is $(0, y)$. What is the value of y?

Question ID 1783bf90

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Algebra	Linear equations in two variables	Medium

ID: 1783bf90

A producer is creating a video with a length of 70 minutes. The video will consist of segments that are 1 minute long and segments that are 3 minutes long. Which equation represents this situation, where x represents the number of 1-minute segments and y represents the number of 3-minute segments?

A. $4xy = 70$

B. $4(x + y) = 70$

C. $3x + y = 70$

D. $x + 3y = 70$

Question ID 14aa7110

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Algebra	Linear equations in two variables	Medium

ID: 14aa7110

A line in the *xy*-plane has a slope of $\frac{1}{9}$ and passes through the point $(0, 14)$. Which equation represents this line?

A. $y = -\frac{1}{9}x - 14$

B. $y = -\frac{1}{9}x + 14$

C. $y = \frac{1}{9}x - 14$

D. $y = \frac{1}{9}x + 14$

Question ID 4580a0d2

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Algebra	Linear equations in two variables	Medium

ID: 4580a0d2

A machine makes large boxes or small boxes, one at a time, for a total of 700 minutes each day. It takes the machine 10 minutes to make a large box or 5 minutes to make a small box. Which equation represents the possible number of large boxes, x, and small boxes, y, the machine can make each day?

A. $5x + 10y = 700$

B. $10x + 5y = 700$

C. $(x + y)(10 + 5) = 700$

D. $(10 + x)(5 + y) = 700$

Question ID e37853d7

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Algebra	Linear equations in two variables	Medium

ID: e37853d7

In 2010, a swim club had a total of 35 swimmers, each classified as either advanced or intermediate. From 2010 to 2020, the number of advanced swimmers in the club increased by approximately 53%, and the number of intermediate swimmers in the club increased by approximately 44%. The total number of swimmers in the club increased by approximately 49%. Which equation best represents this situation, where a represents the number of advanced swimmers in the club in 2010 and b represents the number of intermediate swimmers in the club in 2010?

A. $1.53a + 1.49b = 35(1.44)$

B. $1.49a + 0.53b = 35(1.44)$

C. $1.53a + 1.44b = 35(1.49)$

D. $1.44a + 1.53b = 35(1.49)$

Question ID 46790b75

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Algebra	Linear equations in two variables	Medium

ID: 46790b75

A chemist studying the impact of salt on a process mixes x kilograms of a low-salt mixture, which is 2% salt by weight, with y kilograms of a high-salt mixture, which is 96% salt by weight, to create 24 kilograms of a mixture that is 4% salt by weight. Which equation represents this situation?

A. $0.96x + 0.02y = (0.04)(24)$

B. $0.02x + 0.96y = (0.04)(24)$

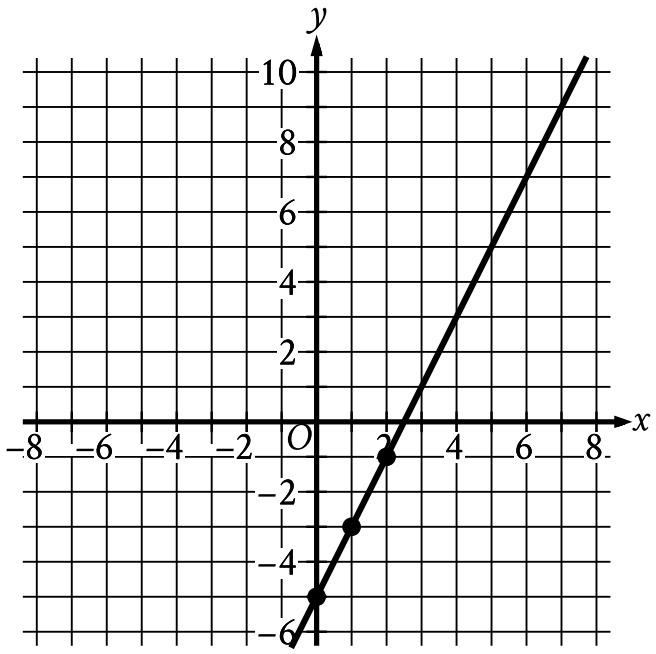
C. $0.96x + 0.02y = 24$

D. $0.02x + 0.96y = 24$

Question ID b58d65ae

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Algebra	Linear equations in two variables	Medium

ID: b58d65ae



The graph shows the linear relationship between x and y. Which table gives three values of x and their corresponding values of y for this relationship?

A.

x	y
0	0
1	−7
2	−9

B.

x	y
0	0
1	−3
2	−1

C.

x	y
0	−5
1	−7

2	-9

D.

x	y
0	-5
1	-3
2	-1

Question ID 791f1069

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Algebra	Linear equations in two variables	Medium

ID: 791f1069

What is the *y*-intercept of the graph of $y = 34x + 81$ in the *xy*-plane?

A. $(0, 81)$

B. $(0, 34)$

C. $(0, -34)$

D. $(0, -81)$

Question ID e274b554

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Algebra	Linear equations in two variables	Medium

ID: e274b554

Line r in the *xy*-plane has a slope of 4 and passes through the point $(0, 6)$. Which equation defines line r?

A. $y = -6x + 4$

B. $y = 6x + 4$

C. $y = 4x - 6$

D. $y = 4x + 6$

Question ID 2c7305e5

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Algebra	Linear equations in two variables	Medium

ID: 2c7305e5

A store sells two different-sized containers of a certain Greek yogurt. The store's sales of this Greek yogurt totaled $1{,}277.94$ dollars last month. The equation $5.48x + 7.30y = 1{,}277.94$ represents this situation, where x is the number of smaller containers sold and y is the number of larger containers sold. According to the equation, which of the following represents the price, in dollars, of each smaller container?

A. 5.48

B. $7.30y$

C. 7.30

D. $5.48x$

Question ID 48122a42

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Algebra	Linear equations in two variables	Medium

ID: 48122a42

Line k is defined by $y = \frac{1}{4}x + 1$. Line j is parallel to line k in the *xy*-plane. What is the slope of j?

Question ID a60e071e

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Algebra	Linear equations in two variables	Medium

ID: a60e071e

$$y = 70x + 8$$

Which table gives three values of x and their corresponding values of y for the given equation?

A.

x	y
0	8
2	148
4	288

B.

x	y
0	70
2	78
4	86

C.

x	y
0	70
2	140
4	280

D.

x	y
0	8
2	132
4	272

Question ID 77a00e0f

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Algebra	Linear equations in two variables	Medium

ID: 77a00e0f

The equation $46 = 2a + 2b$ gives the relationship between the side lengths a and b of a certain parallelogram. If $a = 9$, what is the value of b?

Question ID a2579a71

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Algebra	Linear equations in two variables	Medium

ID: a2579a71

The equation $x + y = 1{,}440$ represents the number of minutes of daylight (between sunrise and sunset), x, and the number of minutes of non-daylight, y, on a particular day in Oak Park, Illinois. If this day has 670 minutes of daylight, how many minutes of non-daylight does it have?

A. 670

B. 770

C. $1{,}373$

D. $1{,}440$

Question ID 701e0600

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Algebra	Linear equations in two variables	Medium

ID: 701e0600

$$y = -4x + 40$$

Which table gives three values of x and their corresponding values of y for the given equation?

A.

x	y
0	0
1	-4
2	-8

B.

x	y
0	40
1	44
2	48

C.

x	y
0	40
1	36
2	32

D.

x	y
0	0
1	4
2	8

Question ID 00d0224c

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Algebra	Linear equations in two variables	Medium

ID: 00d0224c

A food truck buys forks for $\$0.04$ each and plates for $\$0.48$ each. The total cost of x forks and y plates is $\$661.76$. Which equation represents this situation?

A. $0.48x - 0.04y = 661.76$

B. $0.04x - 0.48y = 661.76$

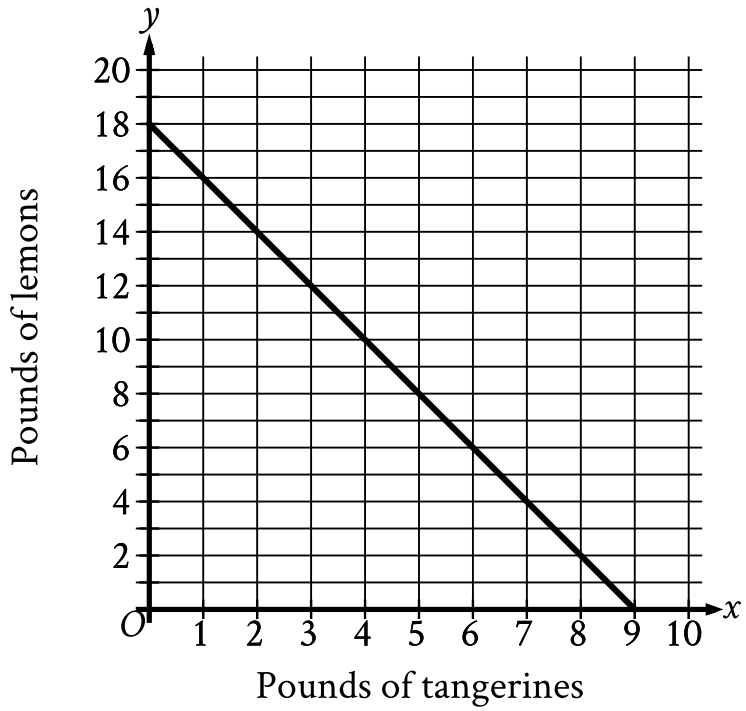
C. $0.48x + 0.04y = 661.76$

D. $0.04x + 0.48y = 661.76$

Question ID 6d5fdc9e

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Algebra	Linear equations in two variables	Medium

ID: 6d5fdc9e



The graph shows the possible combinations of the number of pounds of tangerines and lemons that could be purchased for $18 at a certain store. If Melvin purchased lemons and 4 pounds of tangerines for a total of $18, how many pounds of lemons did he purchase?

A. 7

B. 10

C. 14

D. 16

Question ID ac09437c

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Algebra	Linear equations in two variables	Medium

ID: ac09437c

The equation $46 = 2x + 2y$ gives the perimeter of a rectangular rug that has length x, in feet, and width y, in feet. The width of the rug is 8 feet. What is the length, in feet, of the rug?

Question ID b2fbbed2

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Algebra	Linear equations in two variables	Medium

ID: b2fbbed2

Davio bought some potatoes and celery. The potatoes cost $0.69 per pound, and the celery cost $0.99 per pound. If Davio spent $5.34 in total and bought twice as many pounds of celery as pounds of potatoes, how many pounds of celery did Davio buy?

A. 2

B. 2.5

C. 2.67

D. 4

Question ID b83edf94

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Algebra	Linear equations in two variables	Medium

ID: b83edf94

Line k is defined by $y = 3x + 15$. Line j is perpendicular to line k in the *xy*-plane. What is the slope of line j?

A. $-\frac{1}{3}$

B. $-\frac{1}{12}$

C. $-\frac{1}{18}$

D. $-\frac{1}{45}$

Question ID cd59678b

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Algebra	Linear equations in two variables	Medium

ID: cd59678b

A teacher is creating an assignment worth 70 points. The assignment will consist of questions worth 1 point and questions worth 3 points. Which equation represents this situation, where x represents the number of 1-point questions and y represents the number of 3-point questions?

A. $4xy = 70$

B. $4(x + y) = 70$

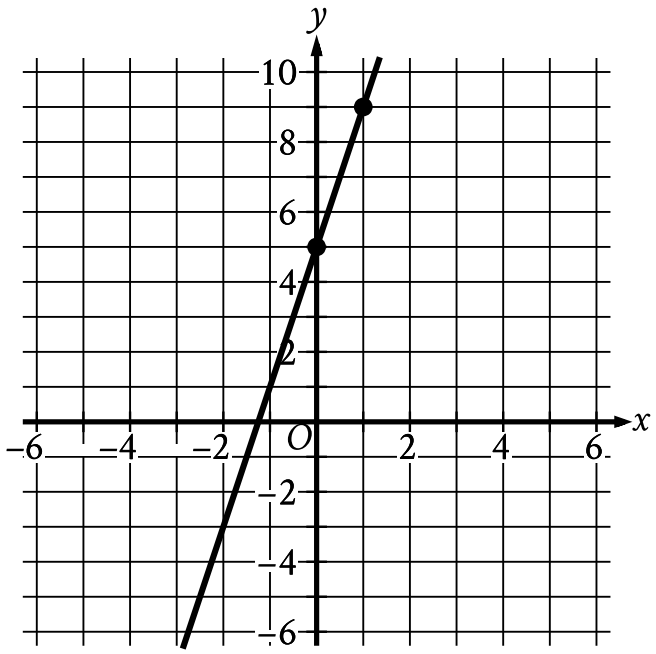
C. $3x + y = 70$

D. $x + 3y = 70$

Question ID b90aad30

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Algebra	Linear equations in two variables	Medium

ID: b90aad30



Line j is shown in the *xy*-plane. Line k (not shown) is parallel to line j. What is the slope of line k?

Question ID d1b7b897

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Algebra	Linear equations in two variables	Medium

ID: d1b7b897

Last week, an interior designer earned a total of $\$1,258$ from consulting for x hours and drawing up plans for y hours. The equation $68x + 85y = 1{,}258$ represents this situation. Which of the following is the best interpretation of 68 in this context?

A. The interior designer earned $\$68$ per hour consulting last week.

B. The interior designer worked 68 hours drawing up plans last week.

C. The interior designer earned $\$68$ per hour drawing up plans last week.

D. The interior designer worked 68 hours consulting last week.

Question ID 908625ad

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Algebra	Linear equations in two variables	Medium

ID: 908625ad

Jay walks at a speed of 3 miles per hour and runs at a speed of 5 miles per hour. He walks for w hours and runs for r hours for a combined total of 14 miles. Which equation represents this situation?

A. $3w + 5r = 14$

B. $\frac{1}{3}w + \frac{1}{5}r = 14$

C. $\frac{1}{3}w + \frac{1}{5}r = 112$

D. $3w + 5r = 112$

Question ID bfad9db1

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Algebra	Linear equations in two variables	Medium

ID: bfad9db1

For a camping trip a group bought x one-liter bottles of water and y three-liter bottles of water, for a total of 240 liters of water. Which equation represents this situation?

A. $x + 3y = 240$

B. $x + y = 240$

C. $3x + 3y = 240$

D. $3x + y = 240$

Question ID 1d833593

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Algebra	Linear equations in two variables	Medium

ID: 1d833593

Naomi bought both rabbit snails and nerite snails for a total of $52. Each rabbit snail costs $8 and each nerite snail costs $6. If Naomi bought 2 nerite snails, how many rabbit snails did she buy?

A. 5

B. 12

C. 14

D. 50

Question ID 809c054a

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Algebra	Linear equations in two variables	Medium

ID: 809c054a

$$7x - 4y = -84$$

For the given equation, which table gives three values of x and their corresponding values of y?

A.

x	0	4	8
y	21	28	35

B.

x	0	4	8
y	35	28	21

C.

x	21	28	35
y	0	4	8

D.

x	21	28	35
y	8	4	0

Question ID 5eab935f

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Algebra	Linear equations in two variables	Medium

ID: 5eab935f

The *y*-intercept of the graph of $12x + 2y = 18$ in the *xy*-plane is $(0, y)$. What is the value of y?

Question ID 52c1d2f8

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Algebra	Linear equations in two variables	Medium

ID: 52c1d2f8

Vivian bought party hats and cupcakes for $71. Each package of party hats cost $3, and each cupcake cost $1. If Vivian bought 10 packages of party hats, how many cupcakes did she buy?

Question ID 78dc6178

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Algebra	Linear equations in two variables	Medium

ID: 78dc6178

The equation $40x + 20y = 160$ represents the number of sweaters, x, and number of shirts, y, that Yesenia purchased for $\$160$. If Yesenia purchased 2 sweaters, how many shirts did she purchase?

A. 3

B. 4

C. 8

D. 40

Question ID 3c3e33bf

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Algebra	Linear equations in two variables	Medium

ID: 3c3e33bf

A total of 364 paper straws of equal length were used to construct two types of polygons: triangles and rectangles. The triangles and rectangles were constructed so that no two polygons had a common side. The equation $3x + 4y = 364$ represents this situation, where x is the number of triangles constructed and y is the number of rectangles constructed. What is the best interpretation of $(x, y) = (24, 73)$ in this context?

A. If 24 triangles were constructed, then 73 rectangles were constructed.

B. If 24 triangles were constructed, then 73 paper straws were used.

C. If 73 triangles were constructed, then 24 rectangles were constructed.

D. If 73 triangles were constructed, then 24 paper straws were used.

Question ID 367c70cb

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Algebra	Linear equations in two variables	Medium

ID: 367c70cb

What is the equation of the line that passes through the point $(0, 5)$ and is parallel to the graph of $y = 7x + 4$ in the *xy*-plane?

A. $y = 5x$

B. $y = 7x + 5$

C. $y = 7x$

D. $y = 5x + 7$

Question ID 1de8694d

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Algebra	Linear equations in two variables	Medium

ID: 1de8694d

x	y
0	18
1	13
2	8

The table shows three values of x and their corresponding values of y. There is a linear relationship between x and y. Which of the following equations represents this relationship?

A. $y = 18x + 13$

B. $y = 18x + 18$

C. $y = -5x + 13$

D. $y = -5x + 18$