

1a Look at the radical.

$$-8\sqrt{726}$$

What is a rewritten form of the radical?

- A. $-88\sqrt{6}$
- B. -90.75
- C. $-986\sqrt{6}$
- D. $-2,904$

$$\begin{aligned} & -8 \cdot \sqrt{726} \\ & \quad \wedge \\ & \quad \sqrt{121} \cdot \sqrt{6} \end{aligned}$$

$$-8 \cdot 11 \cdot \sqrt{6}$$

$$-88\sqrt{6}$$

2a Look at the expression.

$$2\sqrt{8} \cdot \sqrt{20}$$

Which of these is equivalent to this expression?

A. $2\sqrt{28}$

B. 5

C. $8\sqrt{10}$

D. $32\sqrt{10}$

$$2 \cdot \sqrt{8} \cdot \sqrt{20}$$

$$2 \cdot \sqrt{160}$$

$$2 \cdot \sqrt{16 \cdot 10}$$

$$2 \cdot 4 \cdot \sqrt{10}$$

$$8\sqrt{10}$$

3a Which sum is rational?

- A. $\pi + 18$ $\mathbb{I} + \mathbb{R} = \mathbb{I}$
- B. $\sqrt{25} + 1.75$ $\sqrt{25} = 5 = \mathbb{R} + \mathbb{R} = \mathbb{R}$
- C. $\sqrt{3} + 5.5$ $\mathbb{I} + \mathbb{R} = \mathbb{I}$
- D. $\pi + \sqrt{2}$ $\mathbb{I} + \mathbb{I} = \mathbb{I}$

* $\sqrt{25}$ is 5 which is rational

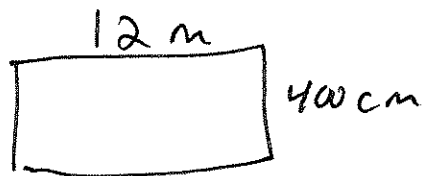
4a Which product is irrational?

- A. $\sqrt{2} \cdot \sqrt{50}$ $\sqrt{100} = 10 = R$
- B. $\sqrt{64} \cdot \sqrt{4}$ $\sqrt{64} = 8$ $\sqrt{4} = 2$ $8 \cdot 2 = 16 = R$
- C. $\sqrt{9} \cdot \sqrt{49}$ $\sqrt{9} = 3$ $\sqrt{49} = 7$ $3 \cdot 7 = 21 = R$
- D. $\sqrt{10} \cdot \sqrt{8}$ $\sqrt{10} \cdot \sqrt{8} = \sqrt{80} = I$

1b A rectangle has a length of 12 meters and a width of 400 centimeters. What is the perimeter, in cm, of the rectangle?

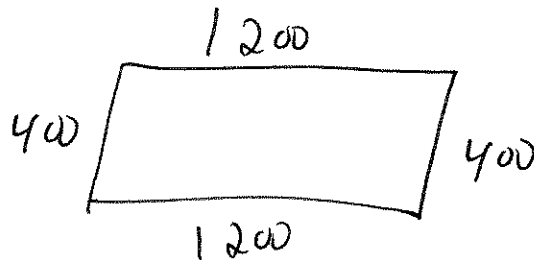
- A. 824 cm
- B. 1,600 cm
- C. 2,000 cm
- D. 3,200 cm

* Convert m to cm



$$1 \text{ m} = 100 \text{ cm}$$

$$12 \text{ m} = 1200 \text{ cm}$$



$$\begin{array}{r} 1200 \\ 1200 \\ 400 \\ 400 \\ \hline 3200 \end{array}$$

2b Jill swam 200 meters in 2 minutes 42 seconds. If each lap is 50 meters long, which is MOST LIKELY to be her time, in seconds, per lap?

- A. 32 seconds
- B. 40 seconds
- C. 48 seconds
- D. 60 seconds


~~Convert minutes to seconds~~

$$2 \text{ min} \rightarrow 120 \text{ seconds}$$

$$42 \text{ sec} \rightarrow \underline{42 \text{ seconds}}$$

$$162 \text{ seconds}$$

$$\begin{array}{l} 200 \text{ m total} \\ \div 50 \text{ m lap} \\ 4 \text{ laps} \end{array}$$


$$\frac{162}{4} = 40.5$$

1C What is the product of $7x - 4$ and $8x + 5$?

- A. $15x + 1$
- B. $30x + 2$
- C. $56x^2 + 3x - 20$
- D. $56x^2 - 3x + 20$

$$(7x-4)(8x+5)$$

$$56x^2 + 35x - 32x - 20$$

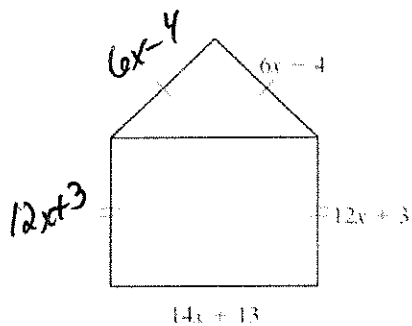
$$56x^2 + 3x - 20$$

	$7x$	-4
$8x$	$56x^2$	$-32x$
$+5$	$35x$	-20

$$56x^2 + 3x - 20$$

$$\begin{array}{r}
 7x - 4 \\
 8x + 5 \\
 \hline
 35x - 20 \\
 56x^2 - 32x \quad 0 \\
 \hline
 56x^2 + 3x - 20
 \end{array}$$

2C A model of a house is shown.



$$\begin{array}{r}
 6x \\
 6x \\
 12x \\
 12x \\
 14x \\
 \hline
 50x
 \end{array}$$

$$\begin{array}{r}
 -4 \\
 -4 \\
 3 \\
 3 \\
 \hline
 13 \\
 \hline
 11
 \end{array}$$

What is the perimeter, in units, of the model?

- A. $32x + 12$ units
- B. $46x + 25$ units
- C. $50x + 11$ units
- D. $64x + 24$ units

3C Which expression has the same value as the expression $(8x^2 + 2x - 6) - (5x^2 - 3x + 2)$?

- A. $3x^2 - x - 4$
- B. $3x^2 + 5x - 8$
- C. $13x^2 - x - 8$
- D. $13x^2 - 5x - 4$

$$\begin{array}{r} 8x^2 + 2x - 6 \\ - \quad 5x^2 - 3x + 2 \\ \hline 8x^2 \quad 2x \quad -6 \\ -5x^2 \quad \quad -3x \quad -2 \\ \hline 3x^2 \quad + 5x \quad -8 \end{array}$$

1d This equation can be used to find h , the number of hours it will take Flo and Bryan to mow their lawn.

$$\frac{h}{3} + \frac{h}{6} = 1$$

How many hours will it take them to mow their lawn?

- A. 6 hours
- B. 3 hours
- C. 2 hours
- D. 1 hour

~~*~~ Common denominator

$$\frac{h}{3} = \frac{2h}{6}$$

$$\frac{h}{3} + \frac{h}{6} = 1$$

$$\frac{2h}{6} + \frac{h}{6} = 1$$

$$\cancel{6} \cdot \frac{3h}{\cancel{6}} = 1 \cdot 6$$

$$\frac{3h}{3} = \frac{6}{3}$$

$$h = 2$$

2d A ferry boat carries passengers back and forth between two communities on the Peachville River.

- It takes 30 minutes longer for the ferry to make the trip upstream than downstream.
- The ferry's average speed in still water is 15 miles per hour.
- The river's current is usually 5 miles per hour.

This equation can be used to determine how many miles apart the two communities are.

$$\frac{m}{15-5} = \frac{m}{15+5} + 0.5$$

What is m , the distance between the two communities?

- A. 0.5 mile
- B. 5 miles
- C. 10 miles
- D. 15 miles

* Simplify the denominators *

$$\frac{m}{15-5} = \frac{m}{15+5} + .5$$

$$\frac{m}{10} = \frac{m}{20} + .5$$

$$\frac{m}{10} - \frac{m}{20} = .5$$

$$\frac{2m}{20} - \frac{m}{20} = .5$$

$$\frac{m}{20} = .5 \cdot 20$$

$$m = 10$$

* Common denominator *

$$\frac{m}{10} = \frac{2m}{20}$$

3d For what values of x is the inequality $\frac{2}{3} + \frac{x}{3} > 1$ true?

- A. $x < 1$
- B. $x > 1$
- C. $x < 5$
- D. $x > 5$

* Already has common denominator *

$$\frac{2}{3} + \frac{x}{3} > 1$$

$$3 \cdot \frac{2+x}{3} > 1 \cdot 3$$

$$\begin{array}{r} \text{2+}x > 3 \\ -2 \quad -2 \\ \hline x > 1 \end{array}$$

4d Look at the steps used when solving $3(x - 2) = 3$ for x .

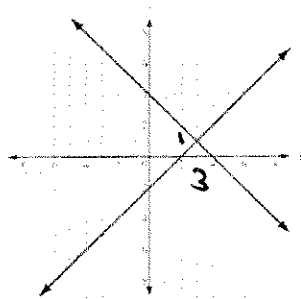
$3(x - 2) = 3$	Write the original equation.
$3x - 6 = 3$	Use the Distributive Property.
$3x - 6 + 6 = 3 + 6$	Step 1
$3x = 9$	Step 2
$\frac{3x}{3} = \frac{9}{3}$	Step 3
$x = 3$	Step 4

Which step is the result of combining like terms?

- A. Step 1
- B. Step 2
- C. Step 3
- D. Step 4

Step 2 the result is the
-6+6 and the 3+6 from
step 1

10 Two lines are graphed on this coordinate plane.



Which point appears to be a solution of the equations of both lines?

- A. $(0, -2)$
- B. $(0, 4)$
- C. $(2, 0)$
- D. $(3, 1)$

* Find the ordered pair of intersection *

2e Based on the tables, at what point do the lines $y = -x + 5$ and $y = 2x - 1$ intersect?

$y = -x + 5$		$y = 2x - 1$	
x	y	x	y
-1	6	-1	-3
0	5	0	-1
1	4	1	1
2	3	2	3
3	2	3	5

- A. (1, 1)
- B. (3, 5)
- C. (2, 3)
- D. (3, 2)

Intersect will be the solution. Therefore the ordered pair have to be in both tables

3e Look at the tables of values for two linear functions, $f(x)$ and $g(x)$.

x	$f(x)$	x	$g(x)$
-1	16	-1	-18
0	7	0	-14
1	4	1	-10
3	-2	3	-2
5	-8	5	6
7	-14	7	14

What is the solution to $f(x) = g(x)$?

↑
Intersection (when do ordered pairs match)
 $(3, -2)$

4e Which ordered pair is a solution of $3y + 2 = 2x - 5$?

A. $(-5, 2)$

B. $(0, -5)$

C. $(5, 1)$

D. $(7, 5)$

Plug and solve

NO A) $3(\overset{2}{\cancel{0}}) + 2 = 2(-5) - 5$
 $6 + 2 = -10 - 5$
 $8 = -15$

NO B) $3(0) + 2 = 2(-5) - 5$
 $0 + 2 = -10 - 5$
 $2 = -15$

Yes C) $3(1) + 2 = 2(5) - 5$
 $3 + 2 = 10 - 5$
 $5 = 5$

5e A manager is comparing the cost of buying baseball caps from two different companies.

- Company X charges a \$50 fee plus \$7 per baseball cap.
- Company Y charges a \$30 fee plus \$9 per baseball cap.

For what number of baseball caps will the cost be the same at both companies?

- A. 10
- B. 20
- C. 40
- D. 100

$$y = 7x + 50$$

$$y = 9x + 30$$

or

plug and solve

$$(7 \cdot 10) + 50 = 120$$

$$(9 \cdot 10) + 30 = 120$$

$$7x + 50 = 9x + 30$$
$$\begin{array}{r} -30 \\ -30 \end{array}$$

$$7x + 20 = 9x$$
$$\begin{array}{r} -7x \\ -7x \end{array}$$

$$\frac{20}{2} = \frac{2x}{2}$$

$$10 = x$$

6e A shop sells one-pound bags of peanuts for \$2 and three-pound bags of peanuts for \$5. If 9 bags are purchased for a total cost of \$36, how many three-pound bags were purchased?

- A. 3
- B. 6
- C. 9
- D. 18

1 lb for \$2
3 lb for \$5

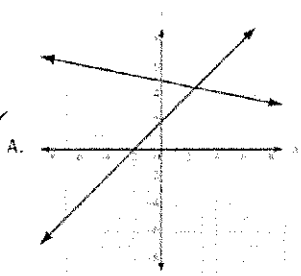
1 lb = $x = 3$
3 lb = $y = 6$

$$x + y = 9$$
$$2x + 5y = 36$$

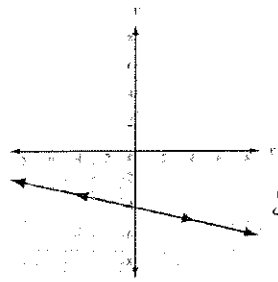
$$x = 3 \rightarrow 1 \text{ lb.}$$
$$y = 6 \rightarrow 3 \text{ lb}$$

7e Which graph represents a system of linear equations that has multiple common coordinate pairs?

1
solution



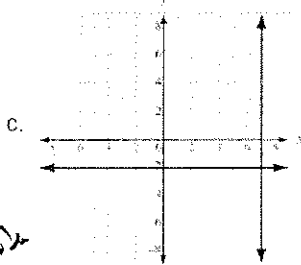
B.



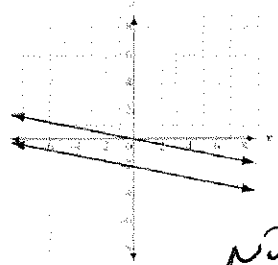
same line

• multiple is more than 1
• means you must have the same line

2
solutions



D.



no solution