



## Answers 3/23

1

A babysitter earns \$8 an hour for babysitting 2 children and an additional \$3 tip when both children are put to bed on time. If the babysitter gets the children to bed on time, what expression could be used to determine how much the babysitter earned?

- $+3$
- A)  $8x + 3$ , where  $x$  is the number of hours  
 B)  $3x + 8$ , where  $x$  is the number of hours  
 C)  $x(8 + 2) + 3$ , where  $x$  is the number of children  
 D)  $3x + (8 + 2)$ , where  $x$  is the number of children

2

$$3(x + y) = y$$

distribute

If  $(x, y)$  is a solution to the equation above and

$y \neq 0$ , what is the ratio  $\frac{x}{y}$ ?

A)  $-\frac{4}{3}$

B)  $-\frac{2}{3}$

C)  $\frac{1}{3}$

D)  $\frac{2}{3}$

$$3x + 3y = y$$

$$3x = -2y$$

divide by  
3y to get  
ratio  $\frac{x}{y}$

$$\frac{3x}{3y} = \frac{-2y}{3y}$$

$$\frac{x}{y} = -\frac{2}{3}$$

3

$$\begin{cases} \frac{1}{2}x - \frac{1}{4}y = 10 \\ \frac{1}{8}x - \frac{1}{8}y = 19 \end{cases} \quad 8$$

Which ordered pair  $(x, y)$  satisfies the system of equations above?

A)  $(-112, -264)$

B)  $(64, 88)$

C)  $\left(\frac{232}{3}, \frac{224}{3}\right)$

D)  $(288, 536)$

eliminate  
fractions  
to make  
solving  
easier

\* multiply  
by LCM  
of 8

$$\begin{aligned} 4x - 2y &= 80 \\ 2(x - y) &= 152 \end{aligned}$$

$$\begin{aligned} &+ 4x - 2y = 80 \\ &2x - 2y = 152 \end{aligned}$$

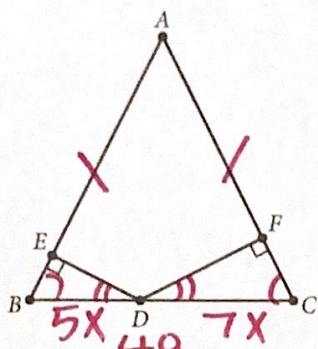
$$6x = 384$$

$$x = 64$$





4



Note: Figure not drawn to scale.

$$BC = 48$$

Triangle  $ABC$  above is isosceles with  $AB = AC$  and  $BC = 48$ . The ratio of  $DE$  to  $DF$  is 5 : 7. What is the length of  $DC$ ?

- A) 12  
B) 20  
C) 24  
D) 28

bare angles  
 $\cong$

$$5x + 7x = 48$$

$$12x = 48$$

$$x = 4$$

$$DC = 7x = 7(4) = 28$$

5

In a certain game, a player can solve easy or hard puzzles. A player earns 30 points for solving an easy puzzle and 60 points for solving a hard puzzle. Tina solved a total of 50 puzzles playing this game, earning 1,950 points in all. How many hard puzzles did Tina solve?

- A) 10  
B) 15  
C) 25  
D) 35

system of eqns

$$x = \text{easy} \quad y = \text{hard}$$

$$x + y = 50$$

$$30x + 60y = 1950$$

findy

6

$$2x^2 + 7x - 15 = 0$$

If  $r$  and  $s$  are two solutions of the equation above and  $r > s$ , which of the following is the value of  $r - s$ ?

- A)  $\frac{15}{2}$   
B)  $\frac{13}{2}$   
C)  $\frac{11}{2}$   
D)  $\frac{3}{2}$

$$\begin{array}{r} x + 5 \\ 2x^2 + 7x - 15 \\ \underline{-3x - 15} \\ 10x - 30 \\ \underline{-10x - 15} \\ -30 \end{array}$$

$$(2x-3)(x+5)=0$$

$$x = \frac{3}{2}, -5$$

$$\frac{3}{2} > -5$$

$$\frac{3}{2} - (-5) = 6.5$$

7

To cut a lawn, Allan charges a fee of \$15 for his equipment and \$8.50 per hour spent cutting a lawn. Taylor charges a fee of \$12 for his equipment and \$9.25 per hour spent cutting a lawn. If  $x$  represents the number of hours spent cutting a lawn, what are all the values of  $x$  for which Taylor's total charge is greater than Allan's total charge?

- A)  $x > 4$   
B)  $3 \leq x \leq 4$   
C)  $4 \leq x \leq 5$   
D)  $x < 3$

$$12 + 9.25x$$

$$15 + 8.50x$$

solve

$$12 + 9.25x > 15 + 8.50x$$

$$12 + 0.75x > 15$$

$$0.75x > 3$$

$$x > 4$$