

PSSA and Keystone Exams
Summer 2023 Workshops

Keystone Algebra

Baskets of Tomatoes

Handscoring
Practice Set 2^{*}

*Responses in this set do not have true scores. Apply scores based on scoring criteria.

F

16. Small baskets of tomatoes are sold at a vegetable stand for \$3 per basket. Large baskets of tomatoes are sold at the stand for \$5 per basket. Only whole numbers of baskets may be purchased.

A customer purchases a total of 8 baskets of tomatoes and pays \$36.

- A. Write and solve a system of equations that models the number of small baskets (x) and the number of large baskets (y) that the customer purchases. Show or explain all your work.

$$8x + y = \$36$$

$$y + 8x = \$36$$

16. *Continued.* Please refer to the previous page for task explanation.

Another customer claims that he can purchase a total of 10 baskets of tomatoes and pay \$45.

- B. Use a system of equations that describes this other customer's purchase to explain why the claim is incorrect.

$$10x + y = \$45$$

F

16. Small baskets of tomatoes are sold at a vegetable stand for \$3 per basket. Large baskets of tomatoes are sold at the stand for \$5 per basket. Only whole numbers of baskets may be purchased.

A customer purchases a total of 8 baskets of tomatoes and pays \$36.

- A. Write and solve a system of equations that models the number of small baskets (x) and the number of large baskets (y) that the customer purchases. Show or explain all your work.

$$3x + 5y = 36 \quad x + y = 8$$

$$3(2) + 5(6) = 36 \quad \begin{array}{r} 2 + 6 = 8 \\ \hline 8 = 8 \end{array}$$

$$\begin{array}{r} 6 + 30 = 36 \\ \hline 36 = 36 \end{array}$$

The customer can buy 2 small baskets of tomatoes & 6 large baskets of tomatoes for it to equal \$36 & to have 8 baskets.

16. *Continued.* Please refer to the previous page for task explanation.

Another customer claims that he can purchase a total of 10 baskets of tomatoes and pay \$45.

- B. Use a system of equations that describes this other customer's purchase to explain why the claim is incorrect.

$$3x + 5y = 45 \quad x + y = 10$$

$$\begin{array}{r} 3(5) + 5(5) = 45 \\ \underline{15 + 25 = 45} \\ 40 \neq 45 \end{array}$$

$$\begin{array}{r} 3(3) + 5(7) = 45 \\ \underline{9 + 35 = 45} \\ 44 \neq 45 \end{array}$$

If I plug in any two numbers that add up to 10, the price can't be \$45.

16. Small baskets of tomatoes are sold at a vegetable stand for \$3 per basket. Large baskets of tomatoes are sold at the stand for \$5 per basket. Only whole numbers of baskets may be purchased.

A customer purchases a total of 8 baskets of tomatoes and pays \$36.

- A. Write and solve a system of equations that models the number of small baskets (x) and the number of large baskets (y) that the customer purchases. Show or explain all your work.

$$\begin{array}{r} 2.20 \\ xy \overline{) 80} \end{array}$$

36 divided by 8 add
a zero you get 80 divided
by 36 equals 2.2

16. *Continued.* Please refer to the previous page for task explanation.

Another customer claims that he can purchase a total of 10 baskets of tomatoes and pay \$45.

- B. Use a system of equations that describes this other customer's purchase to explain why the claim is incorrect.

$$\begin{array}{r} 4.5 \\ 45 \overline{) 10} \end{array}$$

16. Small baskets of tomatoes are sold at a vegetable stand for \$3 per basket. Large baskets of tomatoes are sold at the stand for \$5 per basket. Only whole numbers of baskets may be purchased.

A customer purchases a total of 8 baskets of tomatoes and pays \$36.

- A. Write and solve a system of equations that models the number of small baskets (x) and the number of large baskets (y) that the customer purchases. Show or explain all your work.

$$\boxed{36 = 3x + 5y} \rightarrow \boxed{x + y = 8}$$

↓ ↓

$$36 = 3 \cdot 2 + 5 \cdot 6$$

$$2 + 6 = 8$$

$$36 = 6 + 30$$

$$36 = 36$$

$$\boxed{x = 2 \quad y = 6}$$

16. *Continued.* Please refer to the previous page for task explanation.

Another customer claims that he can purchase a total of 10 baskets of tomatoes and pay \$45.

- B. Use a system of equations that describes this other customer's purchase to explain why the claim is incorrect.

All possible equations

$$3 \cdot 10 = 30$$

$$3 \cdot 9 + 5 \cdot 1 = 32$$

$$3 \cdot 8 + 5 \cdot 2 = 34$$

$$3 \cdot 7 + 5 \cdot 3 = 36$$

$$3 \cdot 6 + 5 \cdot 4 = 38$$

$$3 \cdot 5 + 5 \cdot 5 = 40$$

$$3 \cdot 4 + 5 \cdot 6 = 42$$

$$3 \cdot 3 + 5 \cdot 7 = 44$$

$$3 \cdot 2 + 5 \cdot 8 = 46$$

$$3 \cdot 1 + 5 \cdot 9 = 48$$

$$3 \cdot 0 + 5 \cdot 10 = 50$$

\$3 per small basket

\$5 per large basket

Need to buy

10 baskets

$$x + y = 10$$

The man is incorrect because I wrote out every possible equation you could do. Since it is \$3 per small basket and \$5 per large basket, and there has to be 10 baskets bought ^{I did} every equation you could possibly do for this problem. All total dollars spent were even, and \$45 was not an answer to any of the equations.

16. Small baskets of tomatoes are sold at a vegetable stand for \$3 per basket. Large baskets of tomatoes are sold at the stand for \$5 per basket. Only whole numbers of baskets may be purchased.

A customer purchases a total of 8 baskets of tomatoes and pays \$36.

- A. Write and solve a system of equations that models the number of small baskets (x) and the number of large baskets (y) that the customer purchases. Show or explain all your work.

Formulas

$$\begin{aligned} 3x + 5y &= 36 & 3x + 5y &= 36 \\ x + y &= 8 & \Rightarrow x &= 8 - y \end{aligned}$$

$$3(8 - y) + 5y = 36$$

$$24 - 3y + 5y = 36$$

$$\begin{array}{r} 24 + 2y = 36 \\ -24 \quad -24 \end{array}$$

$$\frac{2y}{2} = \frac{12}{2}$$

$$y = 6$$

$$x = 8 - 6$$

$$x = 2$$

The customer
has bought
2 small baskets
and 6 large
baskets to get
8 baskets that
cost \$36 in
total.

16. *Continued.* Please refer to the previous page for task explanation.

Another customer claims that he can purchase a total of 10 baskets of tomatoes and pay \$45.

- B. Use a system of equations that describes this other customer's purchase to explain why the claim is incorrect.

$$\begin{array}{l} 3x + 5y = 45 \\ x + y = 10 \end{array} = \begin{array}{l} 3x + 5y = 45 \\ x = 10 - y \end{array}$$

$$\begin{array}{l} \rightarrow 3(10 - y) + 5y = 45 \\ 30 - 3y + 5y = 45 \end{array}$$

$$\begin{array}{r} 30 + 2y = 45 \\ -30 \quad -30 \end{array}$$

$$\frac{2y}{2} = \frac{15}{2}$$

$$y = 7.5$$

$$\begin{array}{l} \rightarrow x = 10 - 7.5 \\ x = 2.5 \end{array}$$

This is incorrect because in order for that to be true, he would have had to buy 2.5 small baskets and 7.5 large baskets which is not possible because "only whole numbers of baskets may be purchased."

Small baskets of tomatoes are sold at a vegetable stand for \$3 per basket. Large baskets of tomatoes are sold at the stand for \$5 per basket. Only whole numbers of baskets may be purchased.

A customer purchases a total of 8 baskets of tomatoes and pays \$36.

A. Write and solve a system of equations that models the number of small baskets (x) and the number of large baskets (y) that the customer purchases. Show or explain all your work.

$$3x + 5y = 36$$

15 / 1000

Another customer claims that he can purchase a total of 10 baskets of tomatoes and pay \$45.

B. Use a system of equations that describes this other customer's purchase to explain why the claim is incorrect.

If this customer is buying 10 baskets of tomatoes for \$45 he is getting ripped off. if you buy 5 \$3 dollar baskets and 5 \$5 dollar baskets the he should only be paying 40 for all 10. or his the costumer would like he can get another large basket to make the balance to 45 dollars as he/she would like.

302 / 1000

16. Small baskets of tomatoes are sold at a vegetable stand for \$3 per basket. Large baskets of tomatoes are sold at the stand for \$5 per basket. Only whole numbers of baskets may be purchased.

A customer purchases a total of 8 baskets of tomatoes and pays \$36.

- A. Write and solve a system of equations that models the number of small baskets (x) and the number of large baskets (y) that the customer purchases. Show or explain all your work.

$$5x + 3y = 36$$

$$(2, 6)$$

$$x + y = 8$$

1

16. *Continued.* Please refer to the previous page for task explanation.

Another customer claims that he can purchase a total of 10 baskets of tomatoes and pay \$45.

- B. Use a system of equations that describes this other customer's purchase to explain why the claim is incorrect.

$$\begin{aligned}x + y &= 10 \\ 3x + 5y &= 45\end{aligned}$$

Small baskets of tomatoes are sold at a vegetable stand for \$3 per basket. Large baskets of tomatoes are sold at the stand for \$5 per basket. Only whole numbers of baskets may be purchased.

A customer purchases a total of 8 baskets of tomatoes and pays \$36.

A. Write and solve a system of equations that models the number of small baskets (x) and the number of large baskets (y) that the customer purchases. Show or explain all your work.

$$3x + 5y = \$36$$

$$x + y = 8$$

22 / 1000

Another customer claims that he can purchase a total of 10 baskets of tomatoes and pay \$45.

B. Use a system of equations that describes this other customer's purchase to explain why the claim is incorrect.

$$x + y = 10$$

$$3x + 5y = 45$$

23 / 1000

16. Small baskets of tomatoes are sold at a vegetable stand for \$3 per basket. Large baskets of tomatoes are sold at the stand for \$5 per basket. Only whole numbers of baskets may be purchased.

A customer purchases a total of 8 baskets of tomatoes and pays \$36.

- A. Write and solve a system of equations that models the number of small baskets (x) and the number of large baskets (y) that the customer purchases. Show or explain all your work.

$$\begin{array}{l} 3x + 5y = 36 \\ -3(x + y = 8) \quad \rightarrow \quad \begin{array}{r} \cancel{3x} + 5y = 36 \\ -\cancel{3x} - 3y = -24 \\ \hline 2y = 12 \\ \frac{2y}{2} = \frac{12}{2} \\ y = 6 \end{array} \\ \quad \quad \quad \downarrow \\ \begin{array}{r} x + y = 8 \\ -6 \quad -6 \\ \hline x = 2 \end{array} \end{array}$$

The customer buys two small baskets and six large baskets of tomatoes.



16. *Continued.* Please refer to the previous page for task explanation.

Another customer claims that he can purchase a total of 10 baskets of tomatoes and pay \$45.

B. Use a system of equations that describes this other customer's purchase to explain why the claim is incorrect.

$$\begin{array}{l}
 3x + 5y = 45 \\
 \cdot -3 \quad (x + y = 10) \rightarrow \begin{array}{r} \cancel{3x} + 5y = 45 \\ \cancel{-3x} - 3y = -30 \\ \hline 2y = 15 \\ \frac{2y}{2} = \frac{15}{2} \\ y = 7.5 \end{array} \\
 \begin{array}{r} x + 7.5 = 10 \\ - 7.5 \quad - 7.5 \\ \hline x = 2.5 \end{array}
 \end{array}$$

This is incorrect because you cannot buy half baskets of tomatoes.

Small baskets of tomatoes are sold at a vegetable stand for \$3 per basket. Large baskets of tomatoes are sold at the stand for \$5 per basket. Only whole numbers of baskets may be purchased.

A customer purchases a total of 8 baskets of tomatoes and pays \$36.

A. Write and solve a system of equations that models the number of small baskets (x) and the number of large baskets (y) that the customer purchases. Show or explain all your work.

$$36 = 3x + 5y$$

$$36 = 3(2) + 5(6)$$

$$36 = 6 + 30$$

$$36 = 36$$

38 / 1000

Another customer claims that he can purchase a total of 10 baskets of tomatoes and pay \$45.

B. Use a system of equations that describes this other customer's purchase to explain why the claim is incorrect.

$$45 = 3x + 5y$$

$$x + y = 10$$

15 / 1000

Keystone: Baskets of Tomatoes (Algebra 1); Practice Set 2

PRACTICE SET 2*

Subject: Algebra 1 Item: Baskets of Tomatoes Grade:HS

Name _____

Number	Score	Consensus	Notes
P2-1			
P2-2			
P2-3			
P2-4			
P2-5			
P2-6			
P2-7			
P2-8			
P2-9			
P2-10			

* Responses in this set do not have true scores. Apply scores based on scoring criteria.