

Tennessee Comprehensive Assessment Program

TCAP/CRA 2013



7

Task 2 Scoring Guide

Lunch Time Snacks Task

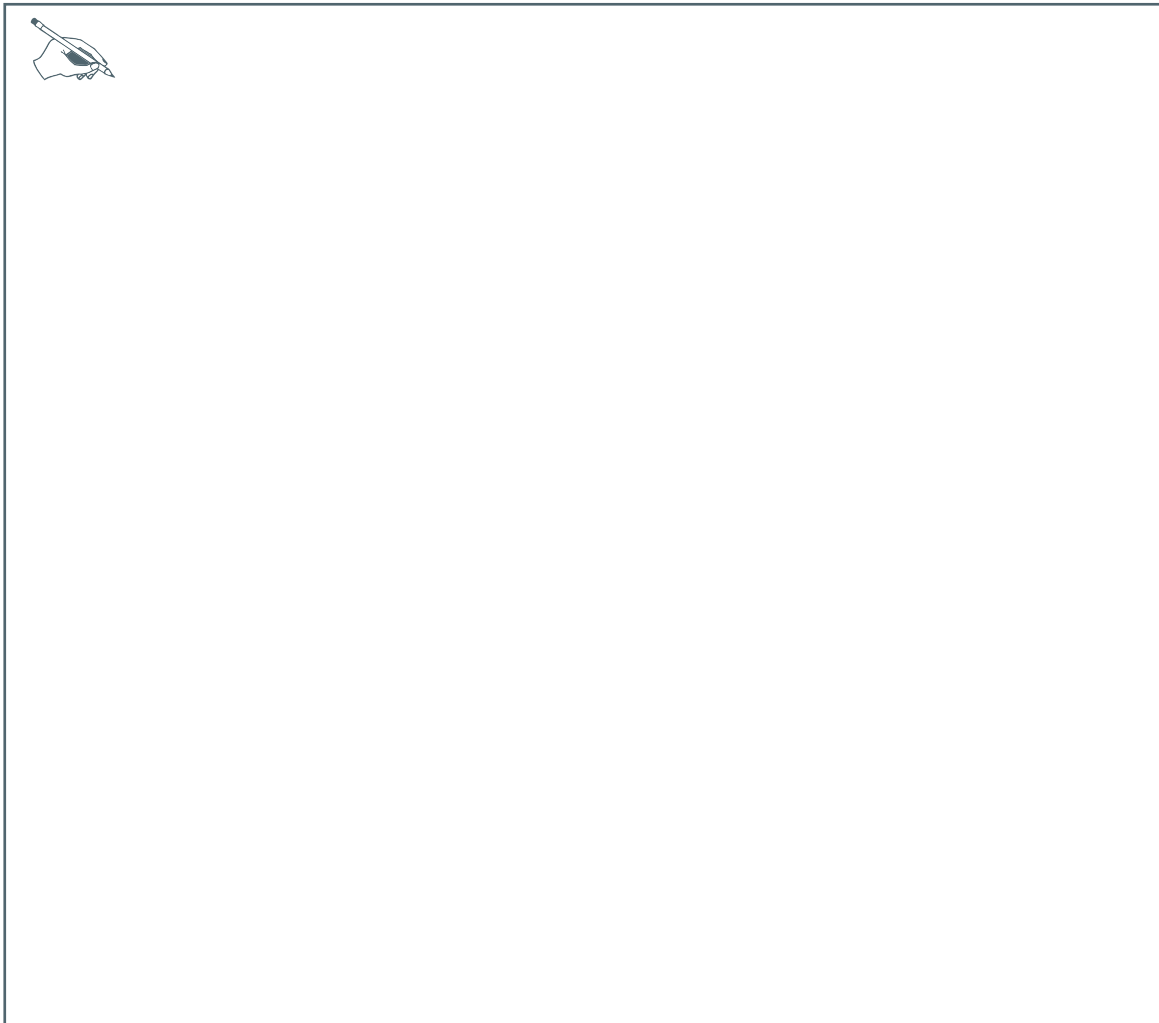
Task 3. Lunch Time Snacks Task

Andrew High School sells snacks at lunch time. The table below gives different amounts of snacks and the corresponding prices:


Number of Snacks (x)	Total Cost of Snacks (y) (in dollars)
4	5.00
6	7.50
10	12.50

Angela uses the information in the table to create the equations $y = 1.25x$ and $x = 0.8y$.

- a. Explain how Angela used data in the table to determine the values 1.25 and 0.8.




b. Explain what the values 1.25 and 0.8 mean in the context of the problem.



A large rectangular box for writing the answer to question b. In the top-left corner, there is a small icon of a hand holding a pen, indicating where to start writing.

c. Do Angela's equations represent the same proportional relationship? Why or why not? Use words and equations, tables, or graphs to justify your response.



A large rectangular box for writing the answer to question c. In the top-left corner, there is a small icon of a hand holding a pen, indicating where to start writing.



3. Lunch Time Snacks Task Scoring Guide

The CCSS for Mathematical Content (3 points)

7.RP.A.2x Represents the relationship between the quantities in any of the following ways: _____

- drawing diagrams and partitioning.
- dividing corresponding values from the table, e.g., cost in dollars by number of snacks and number of snacks by cost in dollars, to determine unit rate.
- scaling the ratio “cost in dollars : number of snacks” in tabular form up or down using multiplication.
- scaling the ratio “cost in dollars : number of snacks” up or down in fraction form; e.g., $\frac{4 \text{ snacks}}{\$5} = \frac{2 \text{ snacks}}{\$2.50} = \frac{1 \text{ snack}}{\$1.25}$ and/or $\frac{4 \text{ snacks}}{\$5} = \frac{0.8 \text{ snack}}{\$1}$.
- multiplying, e.g., 4 snacks by $\frac{1}{5}$ and \$5.00 by $\frac{1}{4}$.

(1 Point)

7.RP.A.2b Explains the meaning of the constant of proportionality as \$1.25 per snack and 0.8 snacks per dollar. _____

(1 Point)

7.RP.A.2z Determines that the two equations represent the same proportional relationship in any of the following ways: _____

- graphing both equations and confirming that they create the same line.
- substituting at least two (x, y) pairs from the table into each equation and confirming that both equations can be used to represent the proportional relationship present in the table.
- rewriting one equation using algebraic manipulation to show that it is equivalent to the other.

(1 Point)

Total Content Points _____

The CCSS for Mathematical Practice (1 point)

MP7 Specifically indicates in the work that the student understands unit rate, the _____
multiplicative relationship that underlies proportional relationships, and the
role of unit rate in the equation.

(1 Point)

(MP7: Look for and make use of structure.)

Total Practice Points _____

Total Awarded Points _____

The CCSS for Mathematical Content Addressed in This Task

Analyze proportional relationships and use them to solve real-world and mathematical problems.

- 7.RP.A.2 Recognize and represent proportional relationships between quantities.
- 7.RP.A.2b Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships.

The CCSS for Mathematical Practice*

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics.
5. Use appropriate tools strategically.
6. Attend to precision.
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning.

*Gray text indicates Mathematical Practices that are not addressed in this task.

Students' responses to a mathematical task provide evidence of what they understand and are able to do in relation to the standards and practices. Across tasks, this cumulative evidence shows students' understanding and abilities within a domain. When students do not respond completely to all parts of a task, they provide insufficient evidence of their mathematical understanding and abilities and therefore do not fully demonstrate the expectations of the standards and practices aligned with that task.

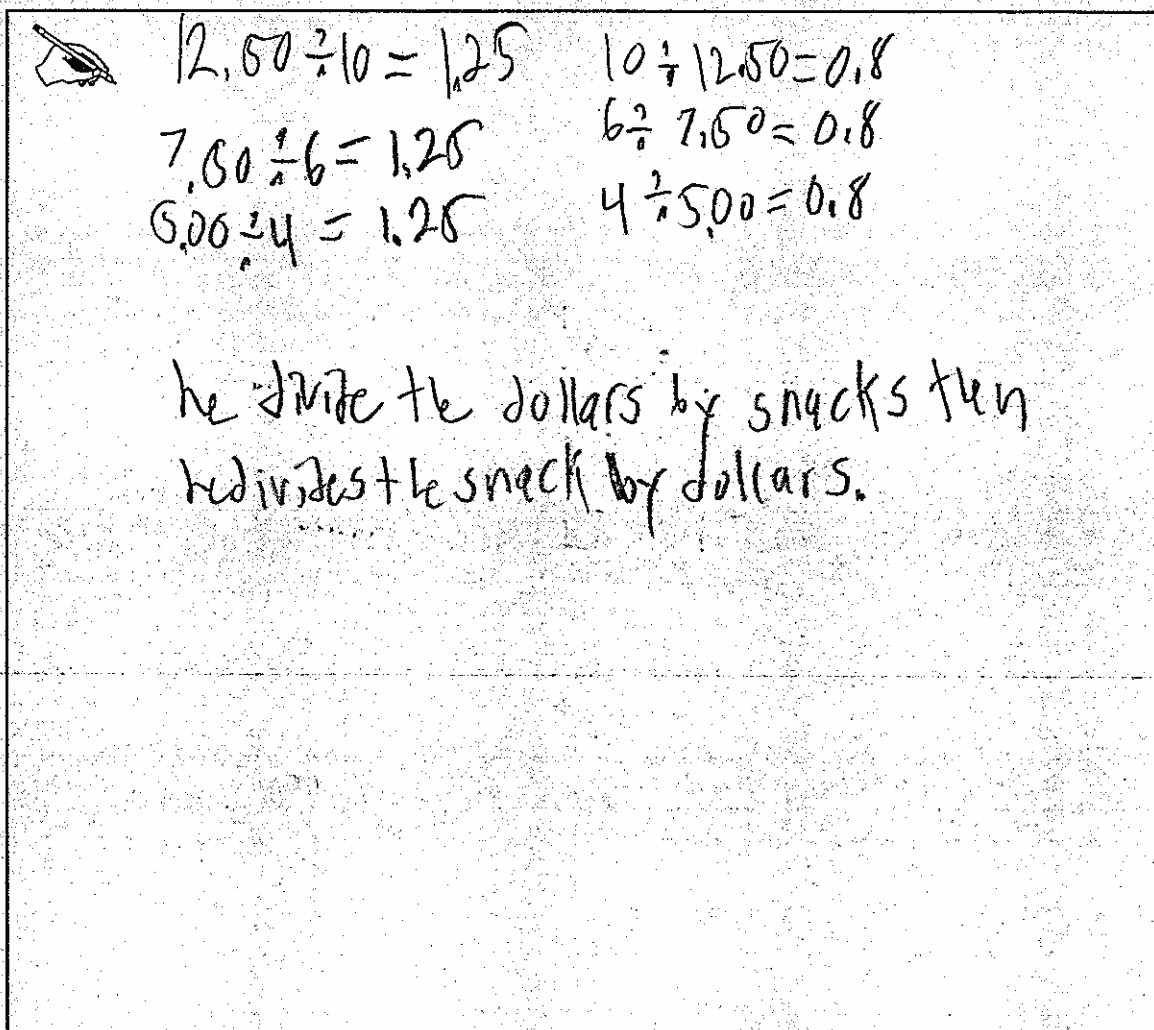
Task 3. Lunch Time Snacks Task

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Number of Snacks (x)	Total Cost of Snacks (y) (in dollars)
4	5.00
6	7.50
10	12.50

Angela uses the information in the table to create the equations $y = 1.25x$ and $x = 0.8y$.


- a. Explain how Angela used data in the table to determine the values 1.25 and 0.8.



$12.50 \div 10 = 1.25$ $10 \div 12.50 = 0.8$
 $7.50 \div 6 = 1.25$ $6 \div 7.50 = 0.8$
 $5.00 \div 4 = 1.25$ $4 \div 5.00 = 0.8$


he divide the dollars by snacks then
 he divides the snack by dollars.

- b. Explain what the values 1.25 and 0.8 mean in the context of the problem.



1.25 is what you get if you want the value of dollars by snacks,
and 0.8 is what you get if you want the value of snacks by dollars

- c. Do Angela's equations represent the same proportional relationship? Why or why not? Use words and equations, tables, or graphs to justify your response.



YES

X	Y
4	5.00
6	7.50
10	12.50

+2.50
+5.00

+2
+4

$5.00 \div 4 = 1.25$ $4 \div 5.00 = 0.8$
 $7.50 \div 6 = 1.25$ $6 \div 7.50 = 0.8$
 $12.50 \div 10 = 1.25$ $10 \div 12.50 = 0.8$

Anchor 1

Litho 784813

Total Content Points: 3 (7.RP.A.2x, 7.RP.A.2b, 7.RP.A.2z)

Total Practice Points: 1 (MP7)

The student shows how the values 1.25 and 0.8 were determined in Part A by using all the ordered pairs from the table to form appropriate ratios for each, and by explaining that division was used (7.RP.A.2x). The student explains the meaning of each constant of proportionality in the context of the problem in Part B by stating “1.25 is what you get if you want the value of dollars by snacks and 0.8 is what you get if you want the value of snacks by dollars” (7.RP.A.2b). The student determines that Angela’s two equations represent the same proportional relationship by inserting each x and y value from the table into each equation in Part C and getting the expected results (7.RP.A.2z). The student indicates an understanding of the unit rate in Part A by determining both unit rates, an understanding of the multiplicative relationship that underlies proportional relationships in Part B by explaining that each snack costs \$1.25 and each \$1 spent is a multiple of 0.8 snacks, and an understanding of the role of the unit rate in the equation in Part C by correctly substituting each ordered pair from the table into each equation (MP7).

Total Awarded Points: 4 out of 4

Task 3. Lunch Time Snacks Task

Andrew High School sells snacks at lunch time. The table below gives different amounts of snacks and the corresponding prices:

Number of Snacks (x)	Total Cost of Snacks (y) (in dollars)
4	5.00
6	7.50
10	12.50

Angela uses the information in the table to create the equations $y = 1.25x$ and $x = 0.8y$.

- a. Explain how Angela used data in the table to determine the values 1.25 and 0.8.

Handwritten work showing calculations for the slope and intercept of the equations:

$\$5.00 \div 4 = 1.25$

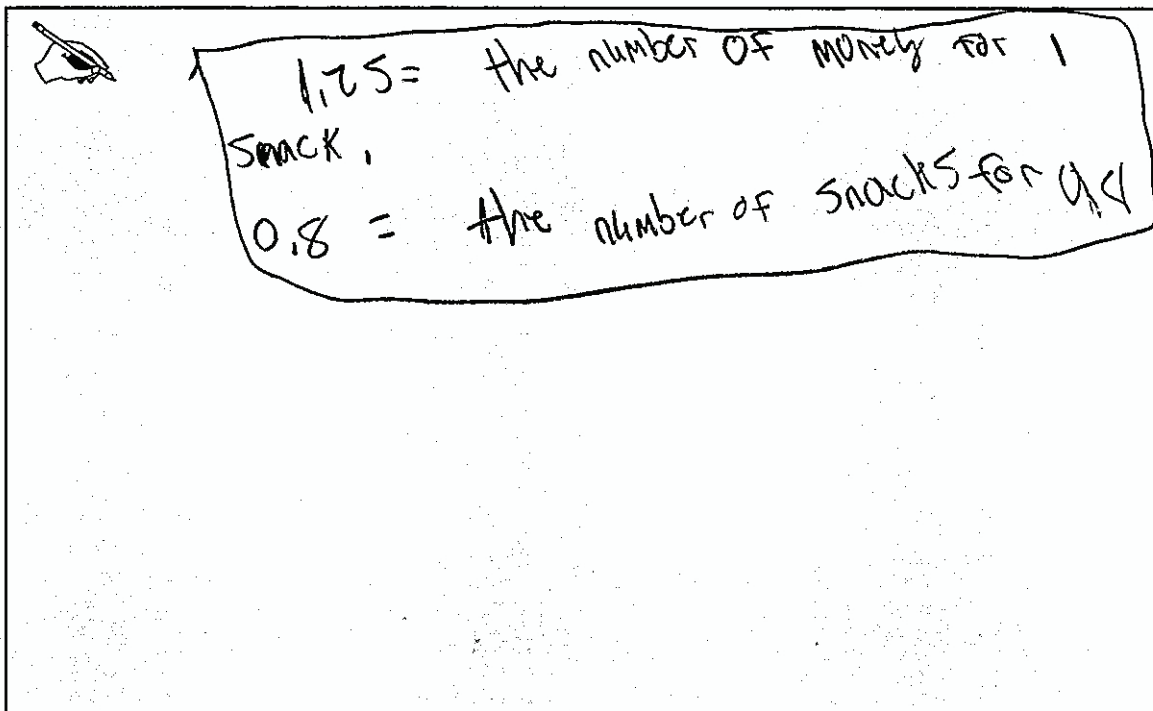
$4 \div \$5.00 = 0.8$


1.25 = y $0.8 = x$

then $\$5.00 \div 4 = 1.25$ which = y

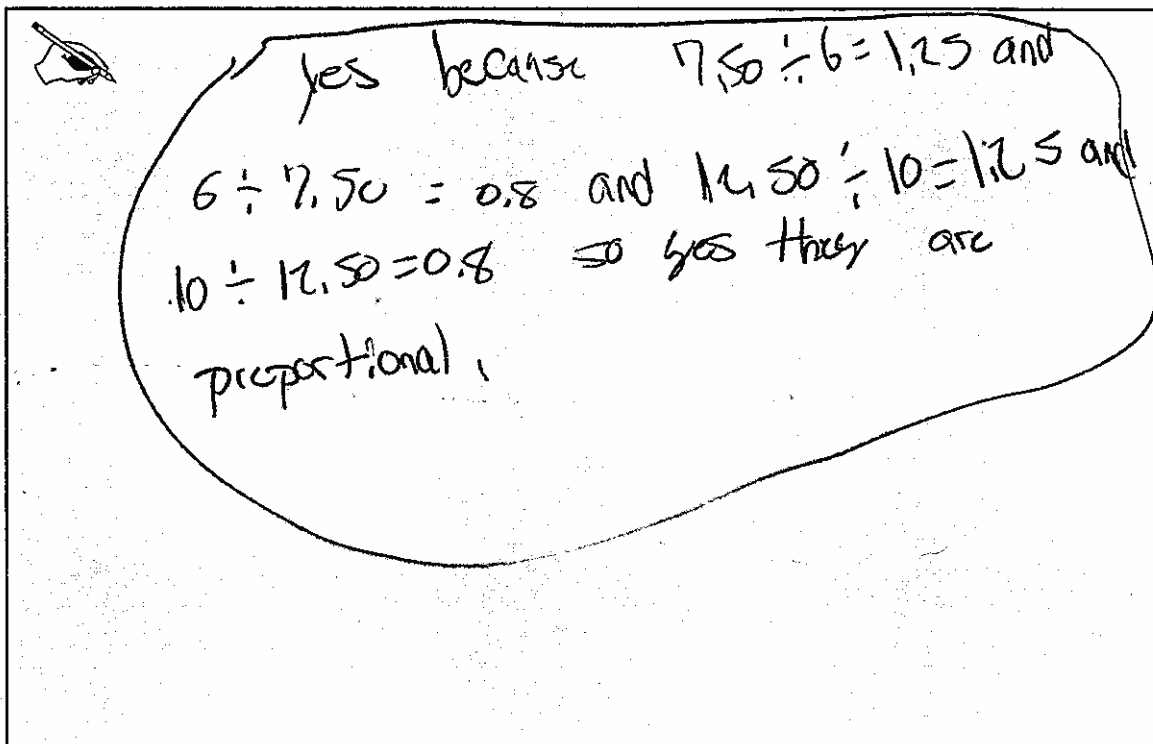
then $4 \div \$5.00 = 0.8$ which = x


- b. Explain what the values 1.25 and 0.8 mean in the context of the problem.



 1.25 = the number of money for 1 snack,
0.8 = the number of snacks for 1 dollar

- c. Do Angela's equations represent the same proportional relationship? Why or why not? Use words and equations, tables, or graphs to justify your response.



 yes because $7.50 \div 6 = 1.25$ and
 $6 \div 7.50 = 0.8$ and $14.50 \div 10 = 1.25$ and
 $10 \div 14.50 = 0.8$ so yes they are
proportional.

Anchor 2

Litho 747366

Total Content Points: 3 (7.RP.A.2x, 7.RP.A.2b, 7.RP.A.2z)

Total Practice Points: 1 (MP7)

The student shows how the values 1.25 and 0.8 were determined in Part A by using an ordered pair from the table (4, 5.00) to form an appropriate ratio for each value ($\$5.00 \div 4 = 1.25$; $4 \div 5 = 0.8$) (7.RP.A.2x). The student explains the meaning of each constant of proportionality in the context of the problem in Part B by stating that 1.25 is the amount of money needed for 1 snack, and 0.8 is the number of snacks per one dollar (7.RP.A.2b). In Part C, the student determines that Angela's two equations represent the same proportional relationship by inserting two x and y ordered pair values from the table, (6, 7.5) and (10, 12.50), into each equation (7.RP.A.2z). The student indicates an understanding in Part A of the unit rate by determining both unit rates, an understanding in Part B of the multiplicative relationship that underlies proportional relationships by explaining that each snack costs \$1.25 and each \$1 spent is a multiple of 0.8 snacks, and an understanding in Part C of the role of the unit rate in the equation by substituting values into each equation (MP7).

Total Awarded Points: 4 out of 4


Task 3. Lunch Time Snacks Task

Andrew High School sells snacks at lunch time. The table below gives different amounts of snacks and the corresponding prices:

Number of Snacks (x)	Total Cost of Snacks (y) (in dollars)
4	5.00
6	7.50
10	12.50

Angela uses the information in the table to create the equations $y = 1.25x$ and $x = 0.8y$.

- a. Explain how Angela used data in the table to determine the values 1.25 and 0.8.

 Angela determined the value 1.25 by finding how much money each snack costs.

Unit rate = $\frac{1 \text{ snack}}{\$1.25}$

$\frac{4 \text{ snacks}}{\$5} = \frac{1 \text{ snack}}{x}$

$5 \div 4 = 1.25$

$5.0 = 4 \cdot x$
 $5 = 4x$
 $\div 4 \quad \div 4$
 $1.25 = x$

$1.25x = y$

x	y
4	5
6	7.5
10	12.5

Angela determined the value 0.8 by finding how many snacks you can buy per dollar.

Unit rate = $\frac{\$1}{0.8 \text{ snacks}}$

$\frac{4 \text{ snacks}}{\$5} = \frac{x}{1}$


$4 \div 5 = 0.8$

$5 \cdot x = 4 \cdot 1$
 $5x = 4$
 $\div 5 \quad \div 5$
 $x = 0.8$

$0.8y = x$


y	x
5	4
7.5	6
12.5	10

- b. Explain what the values 1.25 and 0.8 mean in the context of the problem.



1.25 is the cost for one snack
 0.8 is the amount of snacks you can buy with one dollar

- c. Do Angela's equations represent the same proportional relationship? Why or why not? Use words and equations, tables, or graphs to justify your response.



Angela's equations do represent the same proportional relationship because they all have the same unit rate, $\frac{1}{1.25}$ and you can find both the x and y by using these equations: $1.25x = y$ and $0.8y = x$.

x	y
1	1.25
4	5
6	7.5
10	12.5

Anchor 3

Litho 746655

Total Content Points: 2 (7.RP.A.2x, 7.RP.A.2b)

Total Practice Points: 1 (MP7)

The student shows how the values 1.25 and 0.8 were determined in Part A by using the ordered pair (4, 5.00) from the table to form an appropriate ratio for each value ($5 \div 4 = 1.25$; $4 \div 5 = 0.8$) (7.RP.A.2x). In Part B, the student explains the meaning of each constant of proportionality in the context of the problem by stating “1.25 is the cost for one snack,” and “0.8 is the amount of snacks you can buy with one dollar” (7.RP.A.2b). The student states that the two equations represent the same proportional relationship, but does not use sound mathematical reasoning to justify the answer (“they all have the same unit rate, $\frac{1}{1.25}$ and you can find both the x and y by using these equations”) (no credit for 7.RP.A.2z). The student indicates an understanding in Part A of the unit rate by determining both unit rates, an understanding in Part B of the multiplicative relationship that underlies proportional relationships by explaining that each snack costs \$1.25 and each \$1 spent is a multiple of 0.8 snacks, and an understanding in Part C of the role of the unit rate for one equation ($1.25x = y$) by substituting values into the equation (MP7).

Total Awarded Points: 3 out of 4

Task 3. Lunch Time Snacks Task

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Number of Snacks (x)	Total Cost of Snacks (y) (in dollars)
4	5.00
6	7.50
10	12.50

Angela uses the information in the table to create the equations $y = 1.25x$ and $x = 0.8y$.


- a. Explain how Angela used data in the table to determine the values 1.25 and 0.8.

$y = mx + b$
 $5 = 4m + b$
 $7.5 = 6m + b$
 $2.5 = 2m$
 $m = 1.25$
 $5 = 4(1.25) + b$
 $5 = 5 + b$
 $b = 0$
 $y = 1.25x$

- b. Explain what the values 1.25 and 0.8 mean in the context of the problem.


 $\$1.25$ is cost of one snack
 0.8 is what you multiply with
 y to get x .

- c. Do Angela's equations represent the same proportional relationship? Why or why not? Use words and equations, tables, or graphs to justify your response.



x	$1.25x$	y
4	1.25×4	5.00
6	1.25×6	7.50
10	1.25×10	12.50

y	$0.8y$	x
5.00	0.8×5.00	4
7.50	0.8×7.50	6
12.50	0.8×12.50	10

Anchor 4

Litho 744371

Total Content Points: 2 (7.RP.A.2x, 7.RP.A.2z)

Total Practice Points: 1 (MP7)

The student shows how the values 1.25 and 0.8 were determined in Part A by using the ordered pair (4, 5.00) from the table to form an appropriate ratio for each value ($5 \div 4 = \$1.25$; $4 \div 5 = 0.8$) (7.RP.A.2x). Although in Part B the student does explain the meaning of the constant of proportionality for 1.25 (“\$1.25 is cost of one snack”), the meaning of 0.8 (“0.8 is what you multiply with y to get x ”) is not correct (no credit for 7.RP.A.2b). The student determines that Angela’s two equations represent the same proportional relationship by inserting each x and y value from the table into each equation in tabular form in Part C (7.RP.A.2z). The student indicates an understanding in Part A of the unit rate by determining both unit rates, an understanding in Part B of the multiplicative relationship that underlies proportional relationships by explaining that one snack costs \$1.25, and an understanding in Part C of the role of the unit rate by substituting all values from the table into each equation (MP7).

Total Awarded Points: 3 out of 4


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Number of Snacks (x)	Total Cost of Snacks (y) (in dollars)
4	5.00
6	7.50
10	12.50

Angela uses the information in the table to create the equations $y = 1.25x$ and $x = 0.8y$.

- a. Explain how Angela used data in the table to determine the values 1.25 and 0.8.


 1.25 = the cost, in dollars, per snack.

$.8 =$ the percent of snacks to the total cost.


To find what 1.25 equals, put $\frac{y}{x}$. It equals 1.25 every time. For example, $\frac{5.00}{4} = 1.25$.

To find what .8 represents, put $\frac{x}{y}$. It equals .8 every time. For example $6 \div 7.50 = .8$.

- b. Explain what the values 1.25 and 0.8 mean in the context of the problem.

 1.25 = the Price, in dollars, per snack
 .8 = the percent of snacks to the total cost
 As an example, $10 \times 1.25 = 12.50$.
 Also $.8 \times 12.50 = 10$

- c. Do Angela's equations represent the same proportional relationship? Why or why not? Use words and equations, tables, or graphs to justify your response.

 Yes, they represent proportional relationships.
 If you set them up in proportions, you can see that.

$$\frac{4}{6} = \frac{x}{7.50} \quad \text{OR} \quad \frac{6}{10} = \frac{x}{12.50}$$

$$\frac{6x}{6} = \frac{30}{6} \quad \frac{10x}{10} = \frac{75}{10}$$

$$\boxed{5.00} \quad \boxed{7.50}$$

Anchor 5

Litho 759897

Total Content Points: 1 (7.RP.A.2x)

Total Practice Points: 1 (MP7)

The student shows how the values 1.25 and 0.8 were determined in Part A by using the ordered pair (4, 5.00) from the table to find the appropriate value $\frac{5.00}{4} = 1.25$, and by

using the ordered pair (6, 7.50) to find $\frac{6}{7.50} = 0.8$ (7.RP.A.2x). Although in Part B the

student does explain the correct meaning of the constant of proportionality for 1.25 (“1.25 = the price, in dollars, per snack”), the explanation for 0.8 is incorrect (“.8 = the percent of snacks to the total cost”) (no credit for 7.RP.A.2b). The student forms ratios to determine points already in the table, but does not substitute the points in each equation to verify that Angela’s two equations represent the same proportional relationship (no credit for 7.RP.A.2z). The student indicates an understanding in Part A of the unit rate by determining the cost per snack, an understanding in Part B of the multiplicative relationship that underlies proportional relationships by explaining that each snack costs \$1.25, and an understanding in Part B of the role of the unit rate by using it in the equation ($10 \times 1.25 = 12.50$) (MP7).

Total Awarded Points: 2 out of 4


Task 3. Lunch Time Snacks Task

Andrew High School sells snacks at lunch time. The table below gives different amounts of snacks and the corresponding prices:

Number of Snacks (x)	Total Cost of Snacks (y) (in dollars)
4	5.00
6	7.50
10	12.50

Angela uses the information in the table to create the equations $y = 1.25x$ and $x = 0.8y$.

- a. Explain how Angela used data in the table to determine the values 1.25 and 0.8.




To get $y = 1.25x$, Angela used the equation: $5.00 \div 4$, which equals 1.25.


~~~~~

To get  $x = 0.8y$ , Angela said  $4 \div 5.00$ , which equals 0.8.

- b. Explain what the values 1.25 and 0.8 mean in the context of the problem.

 They are the totals for the two equations used. The values are also unit rates.

- c. Do Angela's equations represent the same proportional relationship? Why or why not? Use words and equations, tables, or graphs to justify your response.

 Yes. they both represent # of snacks to total cost of the snacks.

| X | $1.25x$        | Y    |
|---|----------------|------|
| 4 | $1.25 \cdot 4$ | 5.00 |
| 6 | $1.25 \cdot 6$ | 7.50 |

| Y     | $0.8y$            | X  |
|-------|-------------------|----|
| 5.00  | $0.8 \cdot 5.00$  | 4  |
| 7.50  | $0.8 \cdot 7.50$  | 6  |
| 12.50 | $0.8 \cdot 12.50$ | 10 |

Anchor 6

Litho 747320

Total Content Points: 2 (7.RP.A.2x, 7.RP.A.2z)

Total Practice Points: 0

The student shows how the values 1.25 and 0.8 were determined in Part A by solving expressions (“ $5.00 \div 4$ , which equals 1.25” and “ $4 \div 5.00$ , which equals 0.8”) (7.RP.A.2x). The student does not give a correct meaning of the constant of proportionality in Part B for 1.25 or 0.8 (no credit for 7.RP.A.2b). By using two ordered pairs from the table, (4, 5.00) and (6, 7.50), to verify that the equations in tabular form give the expected results in Part C, the student determines that Angela’s two equations represent the same proportional relationship (7.RP.A.2z). The student indicates an understanding in Part A of the unit rate by determining both unit rates, and an understanding in Part C of the role of the unit rate by using it in the tabular form equations. However, the student does not indicate an understanding of the multiplicative relationship in Part B, giving insufficient explanations for both 1.25 and 0.8 (no credit for MP7).

Total Awarded Points: 2 out of 4




## Task 3. Lunch Time Snacks Task

Andrew High School sells snacks at lunch time. The table below gives different amounts of snacks and the corresponding prices:

| Number of Snacks (x) | Total Cost of Snacks (y)<br>(in dollars) |
|----------------------|------------------------------------------|
| 4                    | 5.00                                     |
| 6                    | 7.50                                     |
| 10                   | 12.50                                    |

Angela uses the information in the table to create the equations  $y = 1.25x$  and  $x = 0.8y$ .

- a. Explain how Angela used data in the table to determine the values 1.25 and 0.8.

  $x = \# \text{ of snacks}$      $y = \text{cost}$

$y = 1.25x$

↓

$y = 1.25 \cdot 4$

↓

$\$5 = 1.25 \cdot 4$

Conclusion:

$\$1.25$  per snack

$x = 0.8y$

↓

$x = 0.8 \cdot \$5.00$


↓

$4 = 0.8 \cdot \$5.00$

Conclusion =

0.8 snacks per dollar

- b. Explain what the values 1.25 and 0.8 mean in the context of the problem.

 \$1.25 means that it's \$1.25 per snack

0.8 means that it's 0.8 snacks per dollar

Example =  $0.8 \times \$7.50 = 6$  snacks

- c. Do Angela's equations represent the same proportional relationship? Why or why not? Use words and equations, tables, or graphs to justify your response.

 It is NOT proportional.

| x  | y       |
|----|---------|
| 4  | \$5     |
| 6  | \$7.50  |
| 10 | \$12.50 |

Anchor 7

Litho 749719

Total Content Points: 1 (7.RP.A.2b)

Total Practice Points: 1 (MP7)

By only using the equations to verify that 1.25 and 0.8 work for the ordered pair (4, 5.00), the student does not adequately show how the values 1.25 and 0.8 are determined in Part A (no credit for 7.RP.A.2x). The student does explain in Part B the correct meaning of the constant of proportionality for 1.25 (“\$1.25 per snack”) and for 0.8 (“0.8 snacks per dollar”) (7.RP.A.2b). The student does not determine that Angela’s two equations represent the same proportional relationship in Part C (no credit for 7.RP.A.2z). The student indicates an understanding in Part A of the unit rate by verifying both equations yield correct results for a given ordered pair, an understanding in Part B of the multiplicative relationship that underlies proportional relationships by explaining that each snack costs \$1.25 and each \$1 buys 0.8 snacks, and an understanding in Part B of the role of the unit rate by giving an example equation ( $0.8 \times \$7.50 = 6$  snacks) (MP7).

Total Awarded Points: 2 out of 4


## Task 3. Lunch Time Snacks Task

Andrew High School sells snacks at lunch time. The table below gives different amounts of snacks and the corresponding prices:

| Number of Snacks (x) | Total Cost of Snacks (y)<br>(in dollars) |
|----------------------|------------------------------------------|
| 4                    | 5.00                                     |
| 6                    | 7.50                                     |
| 10                   | 12.50                                    |


Angela uses the information in the table to create the equations  $y = 1.25x$  and  $x = 0.8y$ .

- a. Explain how Angela used data in the table to determine the values 1.25 and 0.8.




$5.00 \div 4 = 1.25$        $4 \div 5 = .8$   
 $7.50 \div 6 = 1.25$        $6 \div 7.50 = .8$   
 $12.50 \div 10 = 1.25$        $10 \div 12.50 = .8$   
 Divide by x      Divide x by y  
 to get 1.25      to get .8

- b. Explain what the values 1.25 and 0.8 mean in the context of the problem.

 1.25 is the percentage that  $y$  is of  $x$ .  
0.8 is the percentage that  $x$  is of  $y$ .

- c. Do Angela's equations represent the same proportional relationship? Why or why not? Use words and equations, tables, or graphs to justify your response.

 They both represent a proportional relationship, but not the same relationship.

Anchor 8

Litho 755471

Total Content Points: 1 (7.RP.A.2x)

Total Practice Points: 0

The student shows how the values 1.25 and 0.8 were determined in Part A by using all the ordered pairs from the table to form appropriate ratios for each (7.RP.A.2x). In Part B, the student does not explain the specific meaning for the context of the constant of proportionality for 1.25 (“1.25 is the percentage that  $y$  is of  $x$ ”) or 0.8 (“0.8 is the percentage that  $x$  is of  $y$ ”) (no credit for 7.RP.A.2b). The student does not employ any method of verifying Angela’s two equations to determine that they represent the same proportional relationship in Part C (no credit for 7.RP.A.2z). Although the student indicates in Part A an understanding of the unit rate by determining both 1.25 and 0.8, an understanding in Part B of the multiplicative relationship that underlies proportional relationships is not shown, nor is an understanding of the role of the unit rate demonstrated in Part C because the equations are not verified (no credit for MP7).

Total Awarded Points: 1 out of 4


**Task 3. Lunch Time Snacks Task**

Andrew High School sells snacks at lunch time. The table below gives different amounts of snacks and the corresponding prices:


| Number of Snacks ( $x$ ) | Total Cost of Snacks ( $y$ )<br>(in dollars) |
|--------------------------|----------------------------------------------|
| 4                        | 5.00                                         |
| 6                        | 7.50                                         |
| 10                       | 12.50                                        |

Angela uses the information in the table to create the equations  $y = 1.25x$  and  $x = 0.8y$ .


- a. Explain how Angela used data in the table to determine the values 1.25 and 0.8.

 She tested all of the table and used the formula:  $y = 1.25x$  and  $x = 0.8y$  and so you would do  $1.25 \cdot 4$  and get 5.00, so then you would do  $0.8 \cdot 5.00$  and get 4 they match!

- b. Explain what the values 1.25 and 0.8 mean in the context of the problem.

 They are the Formula so it says  $1.25x$  or  $0.8y$  that means multiply 1.25 and  $x$  value like 4, 6, or 10 and you will get the number directly across in the  $y$  table!

- c. Do Angela's equations represent the same proportional relationship? Why or why not? Use words and equations, tables, or graphs to justify your response.



| Number of Snacks ( $x$ ) | Total Cost of Snacks ( $y$ ) (in dollars) |
|--------------------------|-------------------------------------------|
| 4                        | 5.00                                      |
| 6                        | 7.50                                      |
| 10                       | 12.50                                     |

$y = 1.25x$  or  $1.25 \cdot x$        $x = 0.8y$  or  $0.8 \cdot y$   
 # then  $x$  (MULTIPLY)

$y = 1.25x$   
 $\sqrt{1.25 \cdot 4 = 5.00}$        $\sqrt{0.8 \cdot 5.00 = 4}$   
 $\sqrt{1.25 \cdot 6 = 7.50}$        $\sqrt{0.8 \cdot 7.50 = 6}$   
 $\sqrt{1.25 \cdot 10 = 12.50}$        $\sqrt{0.8 \cdot 12.50 = 10}$



Anchor 9

Litho 759242

Total Content Points: 1 (7.RP.A.2z)

Total Practice Points: 0

The student does not show how the values 1.25 and 0.8 were determined in Part A; the ordered pair (4, 5.00) is used only to verify that these values work for the equations (no credit for 7.RP.A.2x). The student does not explain the correct meaning of the constant of proportionality in Part B for 1.25 or 0.8 (no credit for 7.RP.A.2b). The student does determine that Angela's two equations represent the same proportional relationship by inserting each  $x$  and  $y$  value from the table into each equation in Part C and getting the expected results (7.RP.A.2z). Although the student does show an understanding of the role of the unit rate by using it in the equations in Part C, an understanding of the unit rate is not shown because it was not determined in Part A, nor was an understanding shown in Part B of the multiplicative relationships that underlie proportional relationships because no indication is given that 1.25 and 0.8 represent the cost per unit snack and number of snacks per unit cost, respectively (no credit for MP7).

Total Awarded Points: 1 out of 4

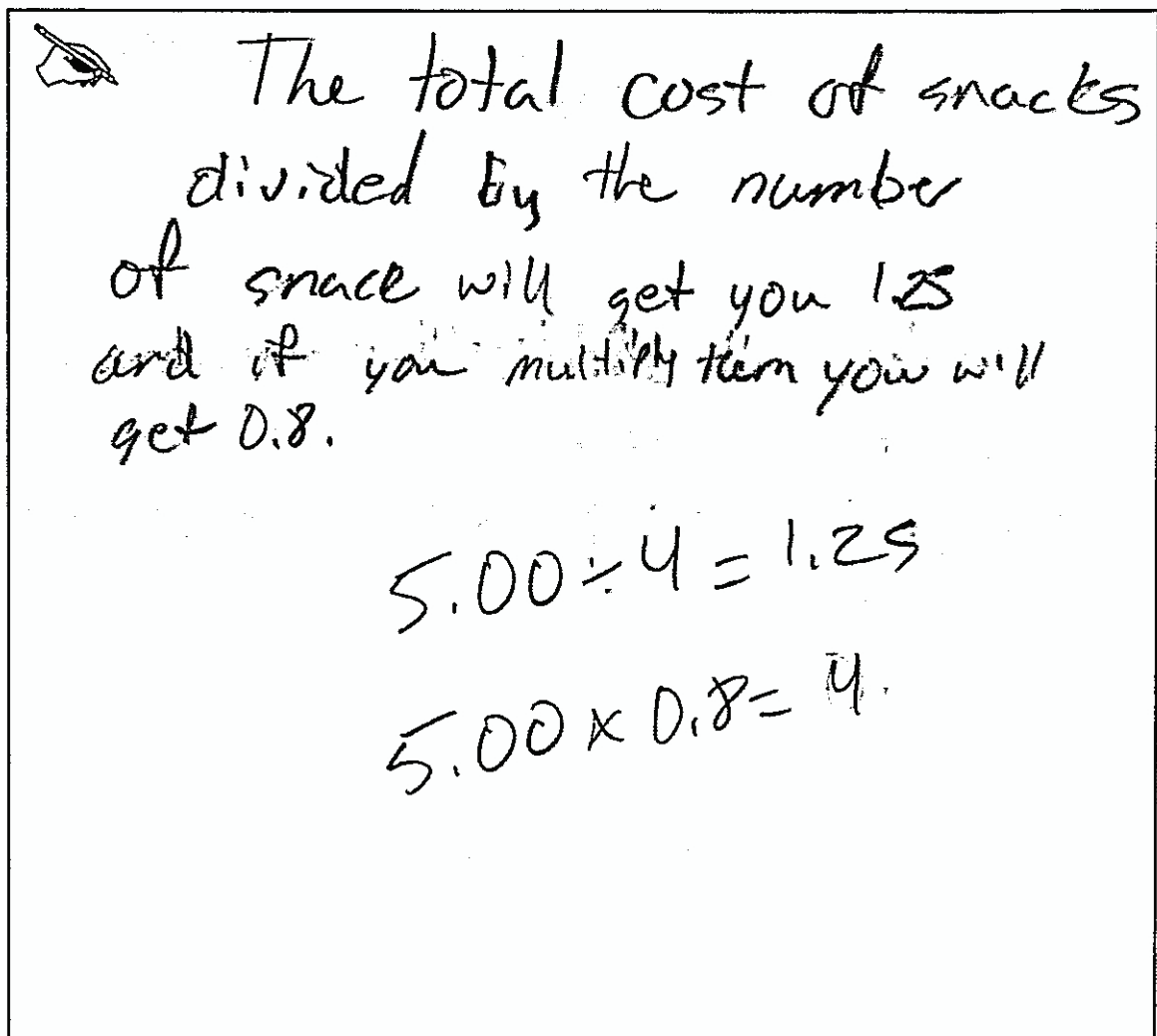
**Task 3. Lunch Time Snacks Task**


Andrew High School sells snacks at lunch time. The table below gives different amounts of snacks and the corresponding prices:

| Number of Snacks ( $x$ ) | Total Cost of Snacks ( $y$ )<br>(in dollars) |
|--------------------------|----------------------------------------------|
| 4                        | 5.00                                         |
| 6                        | 7.50                                         |
| 10                       | 12.50                                        |

Angela uses the information in the table to create the equations  $y = 1.25x$  and  $x = 0.8y$ .


- a. Explain how Angela used data in the table to determine the values 1.25 and 0.8.



 The total cost of snacks divided by the number of snacks will get you 1.25 and if you multiply them you will get 0.8.

$$5.00 \div 4 = 1.25$$
$$5.00 \times 0.8 = 4$$


- b. Explain what the values 1.25 and 0.8 mean in the context of the problem.

 1.25 is the number of each one and 0.8 is what you multiply to get each answer

$$1.25 \times 4 = 5.00$$

$$5.00 \times 0.8 = 4$$

- c. Do Angela's equations represent the same proportional relationship? Why or why not? Use words and equations, tables, or graphs to justify your response.

 Yes they do represent the same relationships because the unit rate for all of them is 1.25

| x  | (1.25) | Y     |
|----|--------|-------|
| 4  | 1.25   | 5.00  |
| 6  | 1.25   | 7.5   |
| 10 | 1.25   | 12.50 |

Total Content Points: 0

Total Practice Points: 0

The student does show how the value 1.25 was determined in Part A by using the ordered pair (4, 5.00) to form the ratio  $5.00 \div 4 = 1.25$ ; however the explanation for how 0.8 was formed is insufficient ( $5.00 \times 0.8 = 4$ ) (no credit for 7.RP.A.2x). The student does not explain the correct meaning of the constant of proportionality in Part B for 1.25 (“1.25 is the number of each one”) or 0.8 (“0.8 is what you multiply to get each [answer]”) (no credit for 7.RP.A.2b). The student does conclude that Angela’s two equations represent the same proportional relationship in Part C, but only supports this by stating “the unit rate for all of them is 1.25” (no credit for 7.RP.A.2z). Although the student does indicate some understanding of the unit rate by determining 1.25 in Part A, no understanding of the multiplicative relationship is given in Part B because 1.25 (“the number of each one”) is not explained as the cost per unit snack, and 0.8 (“what you multiply to get each”) is not explained as the number of snacks per dollar (no credit for MP7).

Total Awarded Points: 0 out of 4