

New York NYSTP 2016 Grade 7 Math

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Grade 7 Mathematics Reference Sheet

CONVERSIONS

1 inch = 2.54 centimeters	1 kilometer = 0.62 mile	1 cup = 8 fluid ounces
1 meter = 39.37 inches	1 pound = 16 ounces	1 pint = 2 cups
1 mile = 5,280 feet	1 pound = 0.454 kilogram	1 quart = 2 pints
1 mile = 1,760 yards	1 kilogram = 2.2 pounds	1 gallon = 4 quarts
1 mile = 1.609 kilometers	1 ton = 2,000 pounds	1 gallon = 3.785 liters
		1 liter = 0.264 gallon
		1 liter = 1,000 cubic centimeters

FORMULAS

Triangle	$A = \frac{1}{2}bh$
Parallelogram	$A = bh$
Circle	$A = \pi r^2$
Circle	$C = \pi d$ or $C = 2\pi r$
General Prisms	$V = Bh$

Name: _____



New York State *Testing Program*

2016 Common Core Mathematics Test Book 1

Grade **7**

April 13–15, 2016

Released Questions

Book 1

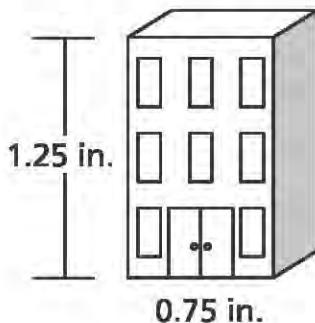


TIPS FOR TAKING THE TEST

Here are some suggestions to help you do your best:

- Read each question carefully and think about the answer before choosing your response.
- You have been provided with mathematics tools (a ruler and a protractor) and a reference sheet to use during the test. It is up to you to decide when each tool and the reference sheet will be helpful. You should use mathematics tools and the reference sheet whenever you think they will help you to answer the question.
- Plan your time.

- 1** The drawing of a building, shown below, has a scale of 1 inch to 30 feet.



What is the actual height, in feet, of the building?

- A 22.5
- B 24
- C 37.5
- D 40

- 2** What is the value of the expression below?

$$-0.75 - \left(-\frac{2}{5}\right) + 0.4 + \left(-\frac{3}{4}\right)$$

- A -1.5
- B -0.7
- C 0.8
- D 2.3

GO ON

- 7** Lehana and Marty each opened a savings account with a deposit of \$100.

- Lehana earned 2.5% simple interest per year.
- Marty earned 2% simple interest per year.
- Neither of them made additional deposits or withdrawals.

How much more did Lehana receive in interest than Marty after three years?

- A \$0.50
- B \$1.50
- C \$5.00
- D \$15.00

- 8** Addison wants to ride her bicycle more than 80 miles this week. She has already ridden her bicycle 18 miles. Which inequality could be used to determine the mean number of miles, m , she would need to ride her bicycle each day for six more days to achieve her goal?

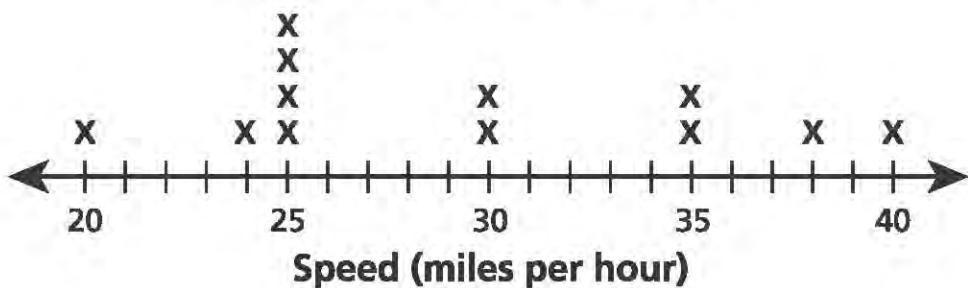
- A $6m + 18 < 80$
- B $6m - 18 < 80$
- C $6m + 18 > 80$
- D $6m - 18 > 80$

GO ON

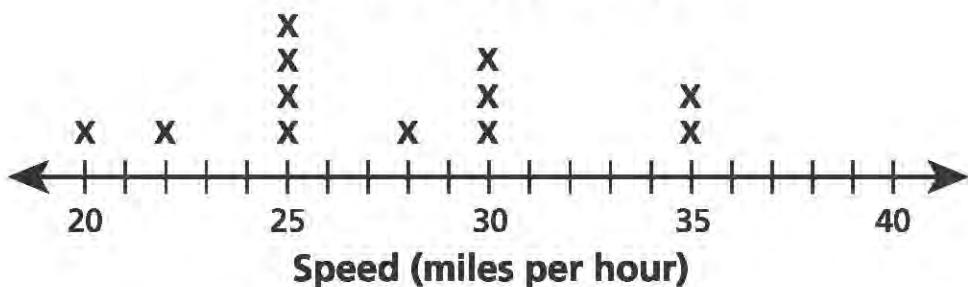
9

An electronic sign that showed the speed of motorists was installed on a road. The line plots below show the speeds of some motorists before and after the sign was installed.

BEFORE SIGN INSTALLATION



AFTER SIGN INSTALLATION



Based on these data, which statement is true about the speeds of motorists after the sign was installed?

- A The mean speed and the range of the speeds of the motorists decreased.
- B The median speed and the range of the speeds of the motorists increased.
- C The mean speed of the motorists decreased and the range of the speeds increased.
- D The median speed of the motorists increased and the range of the speeds decreased.

GO ON

10

A number, n , is multiplied by $-\frac{5}{8}$. The product is -0.4 . What is the value of n ?

A $-\frac{16}{25}$

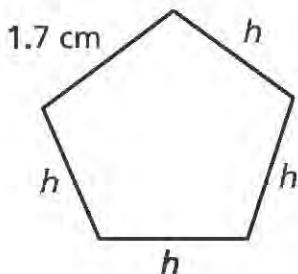
B $-\frac{1}{4}$

C $\frac{1}{4}$

D $\frac{16}{25}$

11

The perimeter of a certain pentagon is 10.5 centimeters. Four sides of this pentagon have the same length, in centimeters, h , and the other side has a length of 1.7 centimeters, as shown below.



What is the value of h ?

A 2.2

B 3.7

C 4.8

D 8.8

GO ON

12

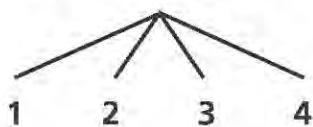
A school principal wants to determine which type of speaker the students prefer to invite to an assembly for the entire student population. Which survey method would produce the **best** representative sample?

- A survey every fifth person who shops at a mall
- B survey all of the students on the student council
- C survey every tenth student entering the school one morning
- D survey all of the students who went to the last basketball game

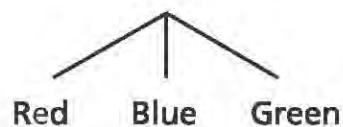
13

Henry has a fair number pyramid with four faces and a spinner with three equal-sized colored sections. The possible outcomes for each are shown below.

Number Pyramid



Spinner



What is the probability that the number pyramid will land on three and the spinner will stop on blue?

A $\frac{1}{12}$

B $\frac{3}{12}$

C $\frac{4}{12}$

D $\frac{7}{12}$

GO ON

14

A company ordered 10 boxed lunches from a deli for \$74.50. Each boxed lunch cost the same amount. Which equation represents the proportional relationship between y , the total cost of the boxed lunches, and x , the number of boxed lunches?

A $7.45x = y$

B $\frac{7.45}{x} = \frac{10}{y}$

C $74.50x = y$

D $\frac{74.50}{x} = \frac{10}{y}$

15

What is the value of the expression $\frac{\left(\frac{2}{3} - \frac{5}{6}\right)}{\frac{3}{4}}$?

A $-\frac{2}{9}$

B $-\frac{1}{8}$

C $\frac{1}{8}$

D $\frac{2}{9}$

16

Which event is **most** likely to occur?

- A flipping a fair coin, with sides labeled heads and tails, and the coin landing on tails
- B choosing a marble out of a bag, with nine blue marbles and one red marble, and the marble being red
- C rolling a fair number cube, with faces labeled one to six, and the cube landing on a number less than six
- D spinning the arrow on a spinner, with four equal sectors labeled one to four, and the arrow landing on a number greater than one

GO ON

20

A trailer will be used to transport several 40-kilogram crates to a store. The greatest amount of weight that can be loaded onto the trailer is 1,050 kilograms. An 82-kilogram crate has already been loaded onto the trailer. What is the greatest number of 40-kilogram crates that can also be loaded onto the trailer?

- A 24
- B 25
- C 26
- D 27

21

What is the value of the expression?

$$\frac{8}{15} \div (-0.35)$$

- A $-\frac{75}{14}$
- B $-\frac{32}{21}$
- C $-\frac{21}{32}$
- D $-\frac{14}{75}$

22

What is the value of the expression below?

$$\left(3\frac{1}{2} - 9\frac{3}{4}\right) \div (-2.5)$$

- A -2.5
- B -2.3
- C 2.3
- D 2.5

GO ON

Book 2

TIPS FOR TAKING THE TEST

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- You have been provided with mathematics tools (a ruler, protractor, and calculator) and a reference sheet to use during the test. It is up to you to decide when each tool and the reference sheet will be helpful. You should use mathematics tools and the reference sheet whenever you think they will help you to answer the question.
- Plan your time.

27 Which expression is equivalent to $4 - (-7)$?

- A $7 + 4$
- B $4 - 7$
- C $-7 - 4$
- D $-4 + 7$

28 The elevation at ground level is 0 feet. An elevator starts 90 feet below ground level. After traveling for 15 seconds, the elevator is 20 feet below ground level. Which statement describes the elevator's rate of change in elevation during this 15-second interval?

- A The elevator traveled upward at a rate of 6 feet per second.
- B The elevator traveled upward at a rate of $4\frac{2}{3}$ feet per second.
- C The elevator traveled downward at a rate of 6 feet per second.
- D The elevator traveled downward at a rate of $4\frac{2}{3}$ feet per second.

29 Which expression represents the product of 3 and $\left(\frac{5}{4}n + 1.8\right)$?

- A $5.55n$
- B $9.15n$
- C $3.75n + 1.8$
- D $3.75n + 5.4$

GO ON

33

Mike took a taxi from his home to the airport. The taxi driver charged an initial fee of \$6 plus \$3 per mile. The total fare was \$24, not including the tip. How many miles did Mike travel by taxi on this ride?

- A 2
- B 6
- C 8
- D 10

34

The original selling price of a share of stock was d dollars. The selling price for a share of the same stock at a later date was represented by the expression $1.15(0.95d)$. Which description could explain what happened to the price of the share of stock?

- A The price decreased by 5% and then increased by 0.15%.
- B The price decreased by 95% and then increased by 0.15%.
- C The price decreased by 5% and then increased by 15%.
- D The price decreased by 95% and then increased by 15%.

35

A clothing store used the sign shown below to advertise a discount on shirts.



Ky wants to buy three shirts, which were originally priced \$49.96 each. The store will discount the price of the third shirt and then apply a 7.1% tax to the total cost of all three shirts. Including the tax, what will be the mean cost of each shirt?

- A \$41.99
- B \$42.70
- C \$44.59
- D \$45.18

GO ON

36

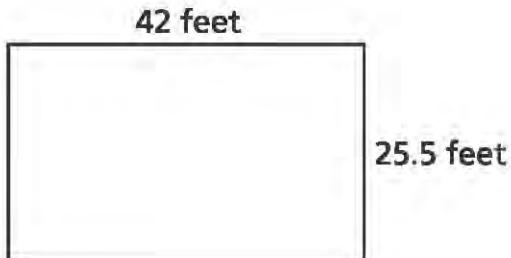
The results for a survey of 120 students who were selected randomly are listed below:

- 60 students have a cell phone plan with company X
- 36 students have a cell phone plan with company Y
- 24 students do not have a cell phone

The total population of students was 380. Based on the data, what is the **best** approximation for the total number of students who have a cell phone plan with company Y?

37

Wallpaper was applied to one rectangular wall of a large room. The dimensions of the wall are shown below.



If the total cost of the wallpaper was \$771.12, what was the cost, in dollars, of the wallpaper per square foot?

- A \$0.61
- B \$0.72
- C \$1.39
- D \$1.65

GO ON

38

Three friends own a landscaping business. The number of hours each friend spent on the same project is shown in the table below.

**HOURS WORKED ON
LANDSCAPING PROJECT**

Name	Hours Worked
Edgar	$17\frac{1}{4}$
Kelly	$18\frac{1}{4}$
Shawn	$14\frac{1}{2}$

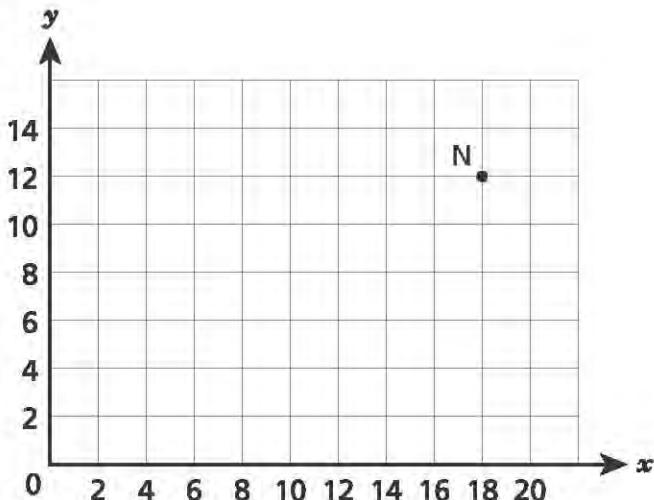
In total, they earned \$850 for the job. They put 15% of this amount into a joint savings account for future expenses. They then divided the rest proportionally based on the number of hours each worked. How much money did Shawn receive?

- A \$209.53
- B \$240.83
- C \$283.48
- D \$295.11

GO ON

39

Line KN represents a proportional relationship. Point N lies at $(18, 12)$, as shown on the graph below.



Which ordered pair could represent the coordinates of point K?

- A $(6, 0)$
- B $(2, 3)$
- C $(1.5, 0)$
- D $(7.5, 5)$

40

Which expression is equivalent to the expression $-3(4x - 2) - 2x$?

- A $-8x$
- B $-16x$
- C $-14x - 2$
- D $-14x + 6$

GO ON

41

Maya uses blue and orange fabric to make identical wall decorations. The graph below shows the relationship between the amounts of blue and orange fabric used.



What is the constant of proportionality as shown in the graph?

- A $\frac{3}{10}$
- B $\frac{2}{5}$
- C $\frac{3}{7}$
- D $\frac{1}{2}$

42

Lance bought n notebooks that cost \$0.75 each and p pens that cost \$0.55 each. A 6.25% sales tax will be applied to the total cost. Which expression represents the total amount Lance paid, including tax?

- A $0.0625(n + p) + 0.0625(0.75n + 0.55p)$
- B $(0.75n + 0.55p) + 0.0625(0.75n + 0.55p)$
- C $0.75(0.0625n) + 0.55(0.0625n)$
- D $0.75(1.0625n) + 0.55(1.0625n)$

GO ON

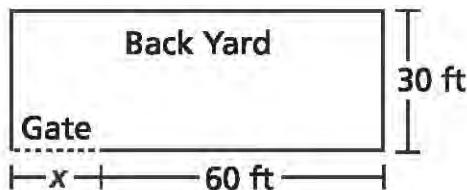
43

A recycling plant processes an average of $\frac{1}{3}$ ton of glass each minute. At approximately what rate does the recycling plant process glass, in tons per day? (1 day = 24 hours)

- A 20
- B 180
- C 480
- D 4,320

44

When Keisha installed a fence along the 200-foot perimeter of her rectangular back yard, she left an opening for a gate. In the diagram below, she used x to represent the length, in feet, of the gate.



What is the value of x ?

- A 10
- B 20
- C 25
- D 30

45

Last year 950 people attended a town's annual parade. This year 1,520 people attended. What was the percent increase in attendance from last year to this year?

- A 37.5%
- B 57.0%
- C 60.0%
- D 62.5%

GO ON

Book 3

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- Be sure to show your work when asked.
- Plan your time.

An after-school program offers tutoring for different subjects. During the last month, a teacher recorded the number of students who participated in tutoring in each subject, as shown in the table below.

TUTORING PARTICIPATION

Subject	Number of Students
Math	40
Science	55
English	47
History	58

Explain how the teacher could use these data to predict about how many of the next 100 students will participate in math tutoring.

GO ON

53

A home-improvement store sold wind chimes for \$30 each. A customer signed up for a free membership card and received a 5% discount off the price. Sales tax of 5% was applied after the discount. What was the final price of the wind chime?

Show your work.

Answer \$ _____

GO ON

54

Ms. Hernandez has \$100 to spend on parking and admission to the zoo. The parking will cost \$7, and admission tickets will cost \$15.50 per person, including tax. Write and solve an equation that can be used to determine the number of people that she can bring to the zoo, including herself.

Show your work.

Answer _____ people

GO ON

55

Two math classes took the same quiz. The scores of 10 randomly selected students from each class are listed below.

- Sample of Class A: 75, 80, 60, 90, 85, 80, 70, 90, 70, 65
- Sample of Class B: 95, 90, 85, 90, 100, 75, 90, 85, 90, 85

Based on the medians of the scores for each class, what inference would you make about the quiz scores of all the students in Class A compared to all the students in Class B? Explain your reasoning to justify your answer.

GO ON

56

A contractor is building the base of a circular fountain. On the blueprint, the base of the fountain has a diameter of 18 centimeters. The blueprint has a scale of three centimeters to four feet. What will be the actual area of the base of the fountain, in square feet, after it is built? Round your answer to the nearest tenth of a square foot.

Show your work.

Answer _____ square feet

GO ON

57

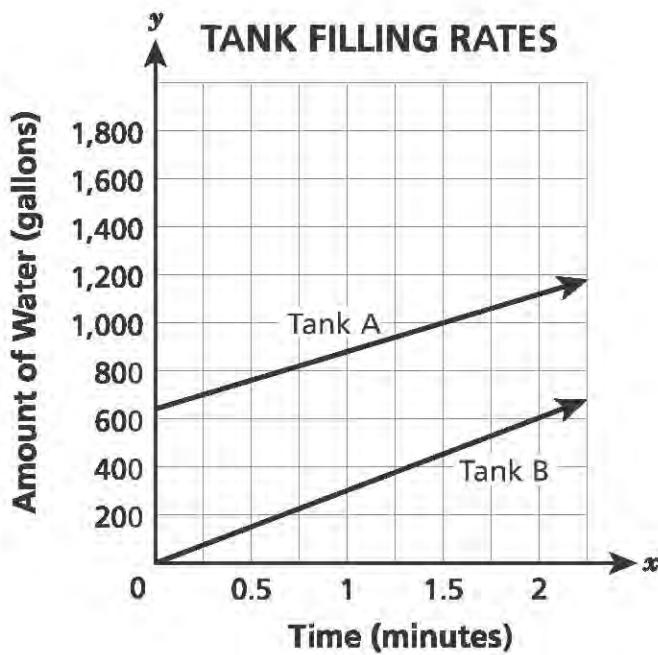
Explain the steps needed to determine the value of the expression shown below. Be sure to provide the correct value of the expression in your explanation.

$$-\frac{\frac{1}{2}}{\frac{2}{5}} + \left(-\frac{1}{4}\right)$$

Answer

GO ON

The lines graphed below show the amounts of water in two tanks as they were being filled over time.



For each tank, explain whether or not there is a proportional relationship between the amount of water, in gallons, and the time, in minutes. If there is a proportional relationship, identify the unit rate. Use specific features of the graph to support your answer.

GO ON

59

Trent is fishing from a pier.

- The tip of his fishing rod is $53\frac{3}{4}$ feet above the surface of the water.
- The hook on the end of the fishing line is directly below the tip of the fishing rod $12\frac{2}{3}$ feet below the surface of the water.

Trent estimates that the distance between the tip of his fishing rod and the hook is less than 65 feet. Is Trent's estimate reasonable? Explain your answer.

Answer

Trent lets his hook drop another 10 inches. What is the distance, in feet, between the tip of the fishing rod and the hook? Do not round your answer.

Show your work.

Answer _____ feet

GO ON

60

The coach for a basketball team wants to buy new shoes for her 12 players.

Super Sports is offering a 20% discount on each pair of shoes, which were originally priced \$72.50. A 6.5% sales tax will be applied to the discounted price.

The same shoes are also available on Double Dribble's web site for \$54.75. A 9% processing fee will be applied to the cost of the shoes, plus a shipping fee of \$5.99 for each pair.

What is the difference in the total costs of the 12 pairs of shoes between the two stores?

Show your work.

Answer \$ _____

GO ON

61

Ruby's Market sells smoked meats by the pound. The prices for several different meats are shown in the table.

RUBY'S MARKET PRICES

Type of Meat	Price per pound
Beef	\$4.25
Chicken	\$2.50
Sausage	\$3.25
Turkey	\$2.85

How much more does $1\frac{1}{4}$ pounds of beef cost than $1\frac{1}{4}$ pounds of turkey?

Show your work.

Answer \$_____

Brad has \$10 to spend at Ruby's. He orders $\frac{1}{2}$ pound of sausage and $1\frac{1}{4}$ pounds of chicken. How much money will Brad have left after he pays for this order?

Show your work.

Answer \$_____

STOP

THE STATE EDUCATION DEPARTMENT
THE UNIVERSITY OF THE STATE OF NEW YORK / ALBANY, NY 12234
2016 Mathematics Tests Map to the Standards
Released Questions Available on EngageNY

Grade 7

Question	Type	Key	Points	Standard	Cluster	Secondary Standard(s)	Multiple Choice Questions:	Constructed Response Questions:	
							Percentage of Students Who Answered Correctly (P-Value)	Average Points Earned	P-Value (Average Points Earned ÷ Total Possible Points)
Book 1									
1	Multiple Choice	C	1	CCSS.Math.Content.7.G.A.1	Geometry		0.70		
2	Multiple Choice	B	1	CCSS.Math.Content.7.NS.A.1d	The Number System		0.40		
7	Multiple Choice	B	1	CCSS.Math.Content.7.RP.A.3	Ratios and Proportional Relationships		0.44		
8	Multiple Choice	C	1	CCSS.Math.Content.7.EE.B.4b	Expressions and Equations		0.54		
9	Multiple Choice	A	1	CCSS.Math.Content.7.SP.B.3	Statistics and Probability		0.48		
10	Multiple Choice	D	1	CCSS.Math.Content.7.NS.A.2c	The Number System		0.47		
11	Multiple Choice	A	1	CCSS.Math.Content.7.EE.B.4a	Expressions and Equations		0.69		
12	Multiple Choice	C	1	CCSS.Math.Content.7.SP.A.1	Statistics and Probability		0.57		
13	Multiple Choice	A	1	CCSS.Math.Content.7.SP.C.8a	Statistics and Probability		0.51		
14	Multiple Choice	A	1	CCSS.Math.Content.7.RP.A.2c	Ratios and Proportional Relationships		0.33		
15	Multiple Choice	A	1	CCSS.Math.Content.7.NS.A.3	The Number System		0.47		
16	Multiple Choice	C	1	CCSS.Math.Content.7.SP.C.5	Statistics and Probability		0.63		
20	Multiple Choice	A	1	CCSS.Math.Content.7.EE.B.4b	Expressions and Equations		0.60		
21	Multiple Choice	B	1	CCSS.Math.Content.7.NS.A.2c	The Number System		0.44		
22	Multiple Choice	D	1	CCSS.Math.Content.7.EE.B.3	Expressions and Equations		0.38		
Book 2									
27	Multiple Choice	A	1	CCSS.Math.Content.7.NS.A.1c	The Number System		0.67		
28	Multiple Choice	B	1	CCSS.Math.Content.7.NS.A.2b	The Number System	CCSS.Math.Content.7.RP.A.1	0.51		
29	Multiple Choice	D	1	CCSS.Math.Content.7.EE.A.1	Expressions and Equations		0.48		
33	Multiple Choice	B	1	CCSS.Math.Content.7.EE.B.4a	Expressions and Equations		0.67		
34	Multiple Choice	C	1	CCSS.Math.Content.7.EE.A.2	Expressions and Equations		0.39		
35	Multiple Choice	C	1	CCSS.Math.Content.7.RP.A.3	Ratios and Proportional Relationships		0.48		
36	Multiple Choice	A	1	CCSS.Math.Content.7.SP.C.6	Statistics and Probability		0.51		

Grade 7

Released Questions Available on EngageNY

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							Percentage of Students Who Answered Correctly (P-Value)	Average Points Earned	P-Value (Average Points Earned ÷ Total Possible Points)
37	Multiple Choice	B	1	CCSS.Math.Content.7.RP.A.1	Ratios and Proportional Relationships		0.42		
38	Multiple Choice	A	1	CCSS.Math.Content.7.NS.A.3	The Number System		0.45		
39	Multiple Choice	D	1	CCSS.Math.Content.7.RP.A.2a	Ratios and Proportional Relationships		0.35		
40	Multiple Choice	D	1	CCSS.Math.Content.7.EE.A.1	Expressions and Equations		0.57		
41	Multiple Choice	C	1	CCSS.Math.Content.7.RP.A.2b	Ratios and Proportional Relationships		0.39		
42	Multiple Choice	B	1	CCSS.Math.Content.7.EE.A.2	Expressions and Equations		0.50		
43	Multiple Choice	C	1	CCSS.Math.Content.7.RP.A.1	Ratios and Proportional Relationships		0.64		
44	Multiple Choice	A	1	CCSS.Math.Content.7.EE.B.4a	Expressions and Equations		0.48		
45	Multiple Choice	C	1	CCSS.Math.Content.7.RP.A.3	Ratios and Proportional Relationships		0.39		
Book 3									
52	Constructed Response		2	CCSS.Math.Content.7.SP.C.6	Statistics and Probability			0.61	0.30
53	Constructed Response		2	CCSS.Math.Content.7.RP.A.3	Ratios and Proportional Relationships			0.88	0.44
54	Constructed Response		2	CCSS.Math.Content.7.EE.B.4a	Expressions and Equations			1.16	0.58
55	Constructed Response		2	CCSS.Math.Content.7.SP.A.2	Statistics and Probability			0.93	0.46
56	Constructed Response		2	CCSS.Math.Content.7.G.B.4	Geometry	CCSS.Math.Content.7.G.A.1		0.56	0.28
57	Constructed Response		2	CCSS.Math.Content.7.NS.A.3	The Number System			1.12	0.56
58	Constructed Response		3	CCSS.Math.Content.7.RP.A.2a	Ratios and Proportional Relationships	CCSS.Math.Content.7.RP.A.2b		0.95	0.32
59	Constructed Response		3	CCSS.Math.Content.7.EE.B.3	Expressions and Equations			0.92	0.31
60	Constructed Response		3	CCSS.Math.Content.7.RP.A.3	Ratios and Proportional Relationships			1.01	0.34
61	Constructed Response		3	CCSS.Math.Content.7.NS.A.3	The Number System			1.43	0.48

*This item map is intended to identify the primary analytic skills necessary to successfully answer each question. However, some questions measure proficiencies described in multiple standards, including a balanced combination of procedural and conceptual understanding.

2-Point Holistic Rubric

2 Point	<p>A two-point response includes the correct solution to the question and demonstrates a thorough understanding of the mathematical concepts and/or procedures in the task.</p> <p>This response</p> <ul style="list-style-type: none">• indicates that the student has completed the task correctly, using mathematically sound procedures• contains sufficient work to demonstrate a thorough understanding of the mathematical concepts and/or procedures• may contain inconsequential errors that do not detract from the correct solution and the demonstration of a thorough understanding
1 Point	<p>A one-point response demonstrates only a partial understanding of the mathematical concepts and/or procedures in the task.</p> <p>This response</p> <ul style="list-style-type: none">• correctly addresses only some elements of the task• may contain an incorrect solution but applies a mathematically appropriate process• may contain the correct solution but required work is incomplete
0 Point*	<p>A zero-point response is incorrect, irrelevant, incoherent, or contains a correct solution obtained using an obviously incorrect procedure. Although some elements may contain correct mathematical procedures, holistically they are not sufficient to demonstrate even a limited understanding of the mathematical concepts embodied in the task.</p>

*Condition Code A is applied whenever a student who is present for a test session leaves an entire constructed-response question in that session completely blank (no response attempted).

3-Point Holistic Rubric

Score Points:

3 Point	A three-point response includes the correct solution(s) to the question and demonstrates a thorough understanding of the mathematical concepts and/or procedures in the task. This response <ul style="list-style-type: none">• indicates that the student has completed the task correctly, using mathematically sound procedures• contains sufficient work to demonstrate a thorough understanding of the mathematical concepts and/or procedures• may contain inconsequential errors that do not detract from the correct solution(s) and the demonstration of a thorough understanding
2 Point	A two-point response demonstrates a partial understanding of the mathematical concepts and/or procedures in the task. This response <ul style="list-style-type: none">• appropriately addresses most, but not all aspects of the task using mathematically sound procedures• may contain an incorrect solution but provides sound procedures, reasoning, and/or explanations• may reflect some minor misunderstanding of the underlying mathematical concepts and/or procedures
1 Point	A one-point response demonstrates only a limited understanding of the mathematical concepts and/or procedures in the task. This response <ul style="list-style-type: none">• may address some elements of the task correctly but reaches an inadequate solution and/or provides reasoning that is faulty or incomplete• exhibits multiple flaws related to misunderstanding of important aspects of the task, misuse of mathematical procedures, or faulty mathematical reasoning• reflects a lack of essential understanding of the underlying mathematical concepts• may contain the correct solution(s) but required work is limited
0 Point*	A zero-point response is incorrect, irrelevant, incoherent, or contains a correct solution obtained using an obviously incorrect procedure. Although some elements may contain correct mathematical procedures, holistically they are not sufficient to demonstrate even a limited understanding of the mathematical concepts embodied in the task.

*Condition Code A is applied whenever a student who is present for a test session leaves an entire constructed-response question in that session completely blank (no response attempted).

2016 2-and 3-Point Mathematics Scoring Policies

Below are the policies to be followed while scoring the mathematics tests for all grades:

1. If a student does the work in other than a designated “Show your work” area, that work should still be scored. (Additional paper is an allowable accommodation for a student with disabilities if indicated on the student’s Individual Education Program or Section 504 Accommodation Plan.)
2. If the question requires students to show their work, and the student shows appropriate work and clearly identifies a correct answer but fails to write that answer in the answer blank, the student should still receive full credit.
3. In questions that provide ruled lines for students to write an explanation of their work, mathematical work shown elsewhere on the page should be considered and scored.
4. If the student provides one legible response (and one response only), teachers should score the response, even if it has been crossed out.
5. If the student has written more than one response but has crossed some out, teachers should score only the response that has **not** been crossed out.
6. Trial-and-error responses are **not** subject to Scoring Policy #5 above, since crossing out is part of the trial-and-error process.
7. If a response shows repeated occurrences of the same conceptual error within a question, the student should **not** be penalized more than once.
8. In questions that require students to provide bar graphs,
 - in Grades 3 and 4 only, touching bars are acceptable
 - in Grades 3 and 4 only, space between bars does **not** need to be uniform
 - in all grades, widths of the bars must be consistent
 - in all grades, bars must be aligned with their labels
 - in all grades, scales must begin at 0, but the 0 does **not** need to be written
9. In questions requiring number sentences, the number sentences must be written horizontally.
10. In pictographs, the student is permitted to use a symbol other than the one in the key, provided that the symbol is used consistently in the pictograph; the student does not need to change the symbol in the key. The student may **not**, however, use multiple symbols within the chart, nor may the student change the value of the symbol in the key.
11. If students are not directed to show work, any work shown will not be scored. This applies to items that do not ask for any work and items that ask for work for one part and do not ask for work in another part.
12. Condition Code A is applied whenever a student who is present for a test session leaves an entire constructed-response question in that session completely blank (no response attempted). This is not to be confused with a score of zero wherein the student does respond to part or all of the question but that work results in a score of zero.

EXEMPLARY RESPONSE

52

An after-school program offers tutoring for different subjects. During the last month, a teacher recorded the number of students who participated in tutoring in each subject, as shown in the table below.

TUTORING PARTICIPATION

Subject	Number of Students
Math	40
Science	55
English	47
History	58

Explain how the teacher could use these data to predict about how many of the next 100 students will participate in math tutoring.

The number of students participating in tutoring was $40 + 55 + 47 + 58 = 200$ students, and

40 out of the 200 students participated in math tutoring which is $40 \div 200 = 0.2 = 20\%$.

The next group will probably also have about 20% of students participating in math tutoring.

OR other valid explanation

GUIDE PAPER 1

Additional

52

An after-school program offers tutoring for different subjects. During the last month, a teacher recorded the number of students who participated in tutoring in each subject, as shown in the table below.

TUTORING PARTICIPATION

Subject	Number of Students
Math	40
Science	55
English	47
History	58

$$\begin{array}{r} \text{Math} \\ \hline 40 - 20 \\ \hline 200 - 100 \end{array}$$

Explain how the teacher could use these data to predict about how many of the next 100 students will participate in math tutoring.

Since the data shows that 40 out of 200 students took math tutoring, the teacher can set up a proportional relationship $\frac{40}{200} = \frac{x}{100}$, and cross multiply. This gives her a reasonable prediction that 20 students will participate in math tutoring. To do it in a more simpler way, the teacher can recognize that she is trying to find how many students out of 100 would take math tutoring. Since this is $\frac{1}{2}$ of the amount of data the table shows (200 students), she can find $\frac{1}{2}$ of 40 students who took math, which is 20.

Score Point 2 (out of 2 points)

This response demonstrates a thorough understanding of the mathematical concepts in the task. The response correctly states that the number of students participating in math tutoring will decrease proportionally. The work provides two correct procedures to predict the number of students participating in math tutoring.

GUIDE PAPER 2

52

An after-school program offers tutoring for different subjects. During the last month, a teacher recorded the number of students who participated in tutoring in each subject, as shown in the table below.

TUTORING PARTICIPATION

Subject	Number of Students
Math	40
Science	55
English	47
History	58

Explain how the teacher could use these data to predict about how many of the next 100 students will participate in math tutoring.

The teacher could predict that about 20 student will participate in math tutoring because 40 participated with 200 students, so 20 should participate with 100 students.

Score Point 2 (out of 2 points)

This response demonstrates a thorough understanding of the mathematical concepts in the task. The work shows complete understanding that the number of students participating in math tutoring will decrease proportionally.

GUIDE PAPER 3

52

An after-school program offers tutoring for different subjects. During the last month, a teacher recorded the number of students who participated in tutoring in each subject, as shown in the table below.

TUTORING PARTICIPATION

Subject	Number of Students
Math	40
Science	55
English	47
History	58

Explain how the teacher could use these data to predict about how many of the next 100 students will participate in math tutoring.

You can add them all up to get
200 students then divide math
students by 2 and you would
get 100 students to get tutoring

Score Point 2 (out of 2 points)

This response demonstrates a thorough understanding of the mathematical concepts in the task. The work shows complete understanding that the number of students participating in math tutoring will decrease proportionally.

GUIDE PAPER 4

52

An after-school program offers tutoring for different subjects. During the last month, a teacher recorded the number of students who participated in tutoring in each subject, as shown in the table below.

TUTORING PARTICIPATION

Subject	Number of Students
Math	40 <i>82 - 26</i>
Science	55
English	47
History	58

Explain how the teacher could use these data to predict about how many of the next 100 students will participate in math tutoring.

they will be 70 ~~not~~ students
that will participate in
math tutoring

Score Point 1 (out of 2 points)

This response demonstrates a partial understanding of the mathematical concepts in the task. Although the prediction for the number of students participating in math tutoring is correct, the explanation is missing.

GUIDE PAPER 5

52

An after-school program offers tutoring for different subjects. During the last month, a teacher recorded the number of students who participated in tutoring in each subject, as shown in the table below.

TUTORING PARTICIPATION

Subject	Number of Students
Math	40
Science	55
English	47
History	58

Explain how the teacher could use these data to predict about how many of the next 100 students will participate in math tutoring.

The teacher could take the percent of the math students and find out how many out of 100 will be participating in math tutoring.

Score Point 1 (out of 2 points)

This response demonstrates a partial understanding of the mathematical concepts in the task. The work shows understanding that the number of students participating in math tutoring will change proportionally; however the explanation is incomplete.

GUIDE PAPER 6

52

An after-school program offers tutoring for different subjects. During the last month, a teacher recorded the number of students who participated in tutoring in each subject, as shown in the table below.

TUTORING PARTICIPATION

Subject	Number of Students
Math	40
Science	55
English	47
History	58

$$\frac{4}{20} = \frac{1}{5}$$

200

Explain how the teacher could use these data to predict about how many of the next 100 students will participate in math tutoring.

She could divide the amount of students by 2 because its $\frac{40}{200}$ students.

Score Point 1 (out of 2 points)

This response demonstrates a partial understanding of the mathematical concepts in the task. Although a correct share of students participating in math tutoring is calculated, the response does not explain why the number of students has to be divided by 2. The response addresses only some elements of the task correctly.

GUIDE PAPER 7

52

An after-school program offers tutoring for different subjects. During the last month, a teacher recorded the number of students who participated in tutoring in each subject, as shown in the table below.

TUTORING PARTICIPATION

Subject	Number of Students	
Math	40	40
Science	55	+55
English	47	+47
History	58	+56 200

Explain how the teacher could use these data to predict about how many of the next 100 students will participate in math tutoring.

100/200 kids will be taking the test because there less last year and there going to be new and old participation.

Score Point 0 (out of 2 points)

This response is not sufficient to demonstrate even a limited understanding of the mathematical concepts in task. The answer and the explanation are incorrect.

GUIDE PAPER 8

Additional

52

An after-school program offers tutoring for different subjects. During the last month, a teacher recorded the number of students who participated in tutoring in each subject, as shown in the table below.

TUTORING PARTICIPATION

Subject	Number of Students
Math	40
Science	55
English	47
History	58

Explain how the teacher could use these data to predict about how many of the next 100 students will participate in math tutoring.

The teacher could average the 4 subjects together and get her answer of how many students will participate

$$\begin{array}{r} 58 \\ 55 \\ 47 \\ 40 \\ \hline 200 \end{array}$$

Score Point 0 (out of 2 points)

This response is not sufficient to demonstrate even a limited understanding of the mathematical concepts in task. The response provides an incorrect procedure to estimate future participation in math tutoring.

EXEMPLARY RESPONSE

53

A home-improvement store sold wind chimes for \$30. A customer signed up for a free membership card and received a 5% discount off the price. Sales tax of 5% was applied after the discount. What was the final price of the wind chime?

Show your work.

$$.05 \times 30 = 1.5$$

$$30 - 1.5 = 28.5$$

$$28.5 \times 0.05 = 1.425$$

$$28.5 + 1.425 = 29.925$$

Or other valid process

29.93

Answer \$_____

GUIDE PAPER 1

Additional

53

A home-improvement store sold wind chimes for \$30. A customer signed up for a free membership card and received a 5% discount off the price. Sales tax of 5% was applied after the discount. What was the final price of the wind chime?

Show your work.

$$\begin{array}{r} 30 \\ \times .95 \\ \hline 28.5 \end{array} \qquad \begin{array}{r} 28.5 \\ \times 1.05 \\ \hline 29.925 \end{array}$$

Answer \$29.93

Score Point 2 (out of 2 points)

This response demonstrates a thorough understanding of the mathematical concepts in the task. A correct procedure is provided to determine the price after a 5% discount then the sales tax is applied correctly to determine the solution.

GUIDE PAPER 2

53

A home-improvement store sold wind chimes for \$30. A customer signed up for a free membership card and received a 5% discount off the price. Sales tax of 5% was applied after the discount. What was the final price of the wind chime?

Show your work.

$$\begin{array}{r} 30 \times .05 = 1.50 \\ 30.00 \\ - 01.50 \\ \hline 28.50 \end{array}$$

$$28.50 \times .05 = 1.43$$

$$\begin{array}{r} 28.50 \\ + 1.43 \\ \hline 29.93 \end{array}$$

Answer \$ 29.93

Score Point 2 (out of 2 points)

This response demonstrates a thorough understanding of the mathematical concepts in the task. A correct procedure is provided to determine the price after a 5% discount then the sales tax is applied correctly to determine the solution.

GUIDE PAPER 3

53

A home-improvement store sold wind chimes for \$30. A customer signed up for a free membership card and received a 5% discount off the price. Sales tax of 5% was applied after the discount. What was the final price of the wind chime?

Show your work.

$$\begin{array}{r} \overline{30} \\ \times .95 \\ \hline 28.5 \\ \times 1.05 \\ \hline 29.93 \end{array}$$

Answer \$ 29.93

Score Point 2 (out of 2 points)

This response demonstrates a thorough understanding of the mathematical concepts in the task. A correct procedure is provided to determine the price after a 5% discount then the sales tax is applied correctly to determine the solution.

GUIDE PAPER 4

53

A home-improvement store sold wind chimes for \$30. A customer signed up for a free membership card and received a 5% discount off the price. Sales tax of 5% was applied after the discount. What was the final price of the wind chime?

Show your work.

Discount

$$\begin{array}{r} \text{5\% of } 30 \\ \hline \frac{5}{100} * \frac{30}{100} = \frac{150}{100} = 1.50 \\ \hline \end{array}$$

$\begin{array}{r} 28.90 \\ - 1.50 \\ \hline 27.40 \end{array}$

$$\begin{array}{r} 15 \\ \hline 100 | 150 \\ \hline -100 \\ \hline 500 \\ \hline \end{array}$$

Sales Tax

$$\begin{array}{r} 28.50 \\ + 1.4250 \\ \hline 29.9250 \\ \hline \end{array}$$
$$\begin{array}{r} 28.50 \\ + 14250 \\ \hline 00000 \\ \hline 014250 \end{array}$$

Answer \$ 29.92

Score Point 1 (out of 2 points)

This response demonstrates a partial understanding of the mathematical concepts in the task. A correct procedure is used to determine the price after a 5% discount. The sales tax is applied correctly; however, a rounding error is made, resulting in an incorrect final answer for the price of wind chimes.

GUIDE PAPER 5

53

A home-improvement store sold wind chimes for \$30. A customer signed up for a free membership card and received a 5% discount off the price. Sales tax of 5% was applied after the discount. What was the final price of the wind chime?

Show your work.

$$\begin{array}{r} 30 \\ \times .05 \\ \hline 1.5 \end{array} \quad \begin{array}{r} 30 \\ - 1.5 \\ \hline 28.50 \end{array}$$

$$\begin{array}{r} 28.50 \\ \times .05 \\ \hline 1.46 \end{array}$$

$$\begin{array}{r} 28.50 \\ + 1.46 \\ \hline 29.96 \end{array}$$

Answer \$ 29.96

Score Point 1 (out of 2 points)

This response demonstrates a partial understanding of the mathematical concepts in the task. A correct procedure is used to determine the price after a 5% discount. An error is made when calculating the sales tax, resulting in an incorrect price for wind chimes.

GUIDE PAPER 6

53

A home-improvement store sold wind chimes for \$30. A customer signed up for a free membership card and received a 5% discount off the price. Sales tax of 5% was applied after the discount. What was the final price of the wind chime?

Show your work.

$$\begin{array}{r} 30 \\ \times 5 \\ \hline 150 \end{array}$$

$$\begin{array}{r} 30 \\ -15 \\ \hline 15 \end{array}$$

$$\begin{array}{r} 215 \\ \times 5 \\ \hline 1075 \end{array}$$

$$\begin{array}{r} 15.00 \\ + 7.50 \\ \hline 22.50 \end{array}$$

Answer \$ 22.50

Score Point 1 (out of 2 points)

This response demonstrates a partial understanding of the mathematical concepts in the task. The response incorrectly multiplies by 0.5 rather than 0.05 when determining the discount and the sales tax, resulting in an incorrect solution. The response addresses some elements of the task correctly.

GUIDE PAPER 7

53

A home-improvement store sold wind chimes for \$30. A customer signed up for a free membership card and received a 5% discount off the price. Sales tax of 5% was applied after the discount. What was the final price of the wind chime?

Show your work.

The handwritten work shows the following steps:

$$\begin{array}{r} \cancel{30} \\ \times .5 \\ \hline \cancel{15} \end{array}$$

Then, the result is added to the original price:

$$\begin{array}{r} 29.50 \\ + 1.5 \\ \hline 30.00 \end{array}$$

Below this, the final price is written in a box:

Final Price = 30.00

Answer \$ 30.00

Score Point 0 (out of 2 points)

This response is not sufficient to demonstrate even a limited understanding of the mathematical concepts in the task. The response has an incorrect discount when calculating the discounted price. An incorrect procedure is used for applying the sales tax.

GUIDE PAPER 8

Additional

53

A home-improvement store sold wind chimes for \$30. A customer signed up for a free membership card and received a 5% discount off the price. Sales tax of 5% was applied after the discount. What was the final price of the wind chime?

Show your work.

$$\begin{array}{r} 30 \\ - 5\% \\ \hline 27 \end{array}$$

Answer \$ 27

Score Point 0 (out of 2 points)

This response is not sufficient to demonstrate even a limited understanding of the mathematical concepts in the task. The work is incomplete. The response does not include sufficient work to show even a limited understanding of the concepts in the task.

EXEMPLARY RESPONSE

54

Ms. Hernandez has \$100 to spend on parking and admission to the zoo. The parking will cost \$7, and admission tickets will cost \$15.50 per person, including tax. Write and solve an equation that can be used to determine the number of people that she can bring to the zoo, including herself.

Show your work.

$$15.5p + 7 = 100$$

$$p = (100 - 7)/15.5$$

$$p = 6$$

Or other valid response

Answer 6 people

GUIDE PAPER 1

Additional

54

Ms. Hernandez has \$100 to spend on parking and admission to the zoo. The parking will cost \$7, and admission tickets will cost \$15.50 per person, including tax. Write and solve an equation that can be used to determine the number of people that she can bring to the zoo, including herself.

Show your work.

$$\begin{array}{r} \text{100} - \text{7} = \text{93} \\ \text{100} = \text{7} + 15.50P \\ \hline \end{array}$$

parking admission/^{per}/person
 ↓
 number of people

$$\begin{array}{r} 100 = 7 + 15.50P \\ -7 \quad -7 \\ \hline 93 = 15.50P \\ \hline 15.50 \quad 15.50 \end{array}$$

$$6 = P$$

Answer 6 people

Score Point 2 (out of 2 points)

This response demonstrates a thorough understanding of the mathematical concepts in the task. A correct equation is provided and correctly solved to determine the solution.

GUIDE PAPER 2

54

Ms. Hernandez has \$100 to spend on parking and admission to the zoo. The parking will cost \$7, and admission tickets will cost \$15.50 per person, including tax. Write and solve an equation that can be used to determine the number of people that she can bring to the zoo, including herself.

Show your work.

\$100. spent

$$\begin{array}{r} \$7 + \$15.50x = \$100 \\ \hline \$15.50x = \$93.00 \end{array}$$

$$\begin{array}{r} \$15.50x = \$93.00 \\ \hline -\$7 \quad -\$7 \\ \$15.50 \quad \$93.00 \\ \hline \$15.50 \quad \$15.50 \end{array}$$

$$\begin{array}{r} \$15.50 \\ \$5.50 \\ \hline \$31.00 \\ \$15.50 \\ +\$46.50 \\ \hline \$15.50 \\ \hline \$62.00 \\ \$15.50 \\ \hline \$77.50 \\ \$15.50 \\ \hline \$93.50 \\ \$0.00 \end{array}$$

Answer 6 people

Score Point 2 (out of 2 points)

This response demonstrates a thorough understanding of the mathematical concepts in the task. A correct equation is provided and correctly solved to determine the solution.

GUIDE PAPER 3

54

Ms. Hernandez has \$100 to spend on parking and admission to the zoo. The parking will cost \$7, and admission tickets will cost \$15.50 per person, including tax. Write and solve an equation that can be used to determine the number of people that she can bring to the zoo, including herself.

Show your work.

$$\begin{array}{r} 7 + 15.50p \leq 100 \\ -7 \\ \hline 15.50p \end{array}$$

Answer 6 people

Score Point 2 (out of 2 points)

This response demonstrates a thorough understanding of the mathematical concepts in the task. A correct inequality is provided and correctly solved to determine the solution.

GUIDE PAPER 4

54

Ms. Hernandez has \$100 to spend on parking and admission to the zoo. The parking will cost \$7, and admission tickets will cost \$15.50 per person, including tax. Write and solve an equation that can be used to determine the number of people that she can bring to the zoo, including herself.

Show your work.

$$\begin{aligned} 7 + 15.50(p) &= 100 \\ +7 &\quad -7 \\ \hline 15.50(p) &= 93 \\ \hline 15.50 &\quad 15.50 \\ p &= 6.9 \end{aligned}$$

Answer 6 people

Score Point 1 (out of 2 points)

This response demonstrates a partial understanding of the mathematical concepts in the task. A correct equation is provided to determine the number of people that can come to the zoo. Although the answer is correct, an error occurs when determining the solution.

GUIDE PAPER 5

54

Ms. Hernandez has \$100 to spend on parking and admission to the zoo. The parking will cost \$7, and admission tickets will cost \$15.50 per person, including tax. Write and solve an equation that can be used to determine the number of people that she can bring to the zoo, including herself.

Show your work.

$$\begin{array}{r} 100 \\ - 7 \\ \hline 93 \end{array}$$

$$\begin{array}{r} 15.50 \\ \times 6 \\ \hline 93 \end{array}$$

$$\begin{array}{r} & 6 \\ 15.5 & \boxed{9} 3.0 \\ - & 9 3.0 \\ \hline & 0 \end{array}$$

Answer 6 people

Score Point 1 (out of 2 points)

This response demonstrates a partial understanding of the mathematical concepts in the task. The response provides a correct but incomplete work: the equation is not provided.

GUIDE PAPER 6

54

Ms. Hernandez has \$100 to spend on parking and admission to the zoo. The parking will cost \$7, and admission tickets will cost \$15.50 per person, including tax. Write and solve an equation that can be used to determine the number of people that she can bring to the zoo, including herself.

Show your work.

Answer 5 people

Score Point 1 (out of 2 points)

This response demonstrates a partial understanding of the mathematical concepts in the task. The response provides a partially correct equation: the price per ticket is incorrect, resulting in an incorrect solution. The response addresses some elements of the task correctly.

GUIDE PAPER 7

54

Ms. Hernandez has \$100 to spend on parking and admission to the zoo. The parking will cost \$7, and admission tickets will cost \$15.50 per person, including tax. Write and solve an equation that can be used to determine the number of people that she can bring to the zoo, including herself.

Show your work.

$$100 - (7 + 15.50)x = X$$

$$100 - 22.50x = X$$

$$77.50$$

Answer 3 people

Score Point 0 (out of 2 points)

This response is not sufficient to demonstrate even a limited understanding of the mathematical concepts in the task. The response provides an incorrect equation to determine the number of people that can come to the zoo.

GUIDE PAPER 8

Additional

54

Ms. Hernandez has \$100 to spend on parking and admission to the zoo. The parking will cost \$7, and admission tickets will cost \$15.50 per person, including tax. Write and solve an equation that can be used to determine the number of people that she can bring to the zoo, including herself.

Show your work.

$$\begin{array}{r} 645 \\ 15.50 \overline{)100} \end{array}$$

Answer 5 people

Score Point 0 (out of 2 points)

This response is not sufficient to demonstrate even a limited understanding of the mathematical concepts in the task. The response follows an incorrect procedure to determine the answer.

EXEMPLARY RESPONSE

55

Two math classes took the same quiz. The scores of 10 randomly selected students from each class are listed below.

- Sample of Class A: 75, 80, 60, 90, 85, 80, 70, 90, 70, 65
- Sample of Class B: 95, 90, 85, 90, 100, 75, 90, 85, 90, 85

Based on the medians of the scores for each class, what inference would you make about the quiz scores of all the students in Class A compared to all the students in Class B? Explain your reasoning to justify your answer.

Since the median of 77.5 for the sample of Class A is less than the median of 90 for the sample of Class B, you can infer that Class B was better prepared for the quiz than Class A.

OR other valid explanation

GUIDE PAPER 1

Additional

55

Two math classes took the same quiz. The scores of 10 randomly selected students from each class are listed below.

- Class A: 75, 80, 60, 90, 85, 80, 70, 90, 70, 85.
- Class B: 95, 90, 85, 90, 100, 75, 90, 85, 90, 85

Based on the medians of the scores for each class, what inference would you make about the quiz scores of all the students in Class A compared to all the students in Class B. Explain your reasoning to justify your answer.

Looking at the medians for the classes and comparing them, Class B did a better job.

$$CA = \frac{70, 65, 70, 70}{77.5} (75, 80, 85, 90, 95)$$

$$\begin{array}{r} 80 \\ + 75 \\ \hline 155 \end{array}$$

$$\frac{77.5}{2155}$$

$$CB = \frac{75, 80, 85, 85}{90} (90, 90, 95, 100)$$

$$\begin{array}{r} 90 \\ + 90 \\ \hline 180 \end{array}$$

$$\frac{90}{2180}$$

Score Point 2 (out of 2 points)

This response demonstrates a thorough understanding of the mathematical concepts in the task. The response follows a correct procedure to determine the medians for Classes A and B and provides a correct inference that Class B is better prepared than Class A.

GUIDE PAPER 2

55

Two math classes took the same quiz. The scores of 10 randomly selected students from each class are listed below.

- Class A: 75, 80, 60, 90, 85, 80, 70, 90, 70, 85
- Class B: 95, 90, 85, 90, 100, 75, 90, 85, 90, 85

Based on the medians of the scores for each class, what inference would you make about the quiz scores of all the students in Class A compared to all the students in Class B. Explain your reasoning to justify your answer.

Class A had worse quiz scores than Class B because the median for Class A is 77.5, while Class B's median is 90.

70, 80, 75, 80, 75, 80, 85, 90, 70, 85
↓
77.5

75, 85, 85, 85, 90, 90, 90, 95, 100

Score Point 2 (out of 2 points)

This response demonstrates a thorough understanding of the mathematical concepts in the task. The response follows a correct procedure to determine the medians and provides a correct inference. A value of 90 is missing in the list of numbers for Class B; however this is an inconsequential error that does not detract from the correct solution.

GUIDE PAPER 3

55

Two math classes took the same quiz. The scores of 10 randomly selected students from each class are listed below.

- Class A: 75, 80, 60, 90, 85, 80, 70, 90, 70, 65 ~~77.5~~
- Class B: 95, 90, 85, 90, 100, 75, 80, 88, 90, 85 ~~90~~

Based on the medians of the scores for each class, what inference would you make about the quiz scores of all the students in Class A compared to all the students in Class B. Explain your reasoning to justify your answer.

The quiz scores in Class A are lower than Class B, because A's median is 77.5 while B's is 90.

Score Point 2 (out of 2 points)

This response demonstrates a thorough understanding of the mathematical concepts in the task. The work follows a correct procedure to determine the medians and provides a correct inference.

GUIDE PAPER 4

55

Two math classes took the same quiz. The scores of 10 randomly selected students from each class are listed below.

- Class A: 75, 80, 60, 90, 85, 80, 70, 90, 70, 65
- Class B: 95, 90, 85, 90, 100, 75, 90, 85, 90, 85

Based on the medians of the scores for each class, what inference would you make about the quiz scores of all the students in Class A compared to all the students in Class B. Explain your reasoning to justify your answer.

All the quiz scores in class A are less than the median of B.

$$\begin{array}{r} \text{A}^{\circ} \\ \text{10} \\ \hline 60, 65, 70, 75, 75, 80, 80, 85, 90, 90 \\ \hline \end{array}$$

75 77.5
 \underline{80} \underline{70|55}

$$\begin{array}{r} \text{B}^{\circ} \\ \text{10} \\ \hline 75, 85, 85, 90, 90, 90, 95, 100 \\ 85, 85, 85, 90, 90, 90, 95, 100 \\ \hline \end{array}$$

sp

Score Point 1 (out of 2 points)

This response demonstrates a partial understanding of the mathematical concepts in the task. The work follows a correct procedure to determine the medians, however an incorrect inference is provided.

GUIDE PAPER 5

55

Two math classes took the same quiz. The scores of 10 randomly selected students from each class are listed below.

- Class A: 75, 80, 60, 90, 85, 80, 70, 90, 70, 65
- Class B: 95, 90, 85, 90, 100, 75, 90, 85, 90, 85

Based on the medians of the scores for each class, what inference would you make about the quiz scores of all the students in Class A compared to all the students in Class B. Explain your reasoning to justify your answer.

Overall the Class "B" did a lot better than Class "A".

Class A - 75, 80, 60, 90, 85, 70, 65

Class B - 95, 90, 85, 100, 75, 90

Score Point 1 (out of 2 points)

This response demonstrates a partial understanding of the mathematical concepts in the task. Although a correct inference is provided, the work for determining the medians is incomplete with no medians calculated.

GUIDE PAPER 6

55

Two math classes took the same quiz. The scores of 10 randomly selected students from each class are listed below.

- Class A: 75, 80, 80, 90, 85, 80, 70, 90, 70, 65
- Class B: 95, 90, 85, 90, 100, 75, 90, 85, 90, 85

Based on the medians of the scores for each class, what inference would you make about the quiz scores of all the students in Class A compared to all the students in Class B. Explain your reasoning to justify your answer.

An inference I could make is that class a didn't study enough and class b did

$$70, 65, 70, 70, 75, 80, 80, 85, 90, 90 \\ \frac{155}{10} \quad 15.5$$

$$75, 85, 85, 85, 90, 90, 90, 95, 95, 100 \\ \frac{180}{10} \quad 18$$

Score Point 1 (out of 2 points)

This response demonstrates a partial understanding of the mathematical concepts in the task. Although a correct inference is provided, the response follows an incorrect procedure when calculating the medians.

GUIDE PAPER 7

55

Two math classes took the same quiz. The scores of 10 randomly selected students from each class are listed below.

- Class A: 75, 80, 60, 90, 85, 80, 70, 90, 70, 65
- Class B: 95, 90, 85, 90, 100, 75, 90, 85, 90, 85

Based on the medians of the scores for each class, what inference would you make about the quiz scores of all the students in Class A compared to all the students in Class B. Explain your reasoning to justify your answer.

Based on medians of the scores Class A had 25 less points than Class B. I took a median of both classes, Class A had 155 and Class B has 180.
A: 90, 60, 70, 75, 80, 85, 90, 95
B: 75, 80, 85, 90, 90, 95, 95, 100
B = 180

Score Point 0 (out of 2 points)

This response is not sufficient to demonstrate even a limited understanding of the mathematical concepts in the task. An incorrect procedure to determine the medians is provided: two values are added rather than averaged to determine the median. The response provides an incorrect inference when comparing the results. The response does not show even a limited understanding of the concepts embodied in the task.

GUIDE PAPER 8

Additional

55

Two math classes took the same quiz. The scores of 10 randomly selected students from each class are listed below.

- Class A: 75, 80, 60, 90, 85, 80, 70, 90, 70, 65
- Class B: 95, 90, 85, 90, 100, 75, 90, 85, 90, 85

Based on the medians of the scores for each class, what inference would you make about the quiz scores of all the students in Class A compared to all the students in Class B. Explain your reasoning to justify your answer.

Class B scored much better than class A
because the lowest score for class B is 75 while class A score is 60.

Score Point 0 (out of 2 points)

This response is not sufficient to demonstrate even a limited understanding of the mathematical concepts in the task. The response provides an incorrect inference and the medians are not calculated.

EXEMPLARY RESPONSE

56

A contractor is building the base of a circular fountain. On the blueprint, the base of the fountain has a diameter of 18 centimeters. The blueprint has a scale of three centimeters to four feet. What will be the actual area of the base of the fountain, in square feet, after it is built? Round your answer to the nearest tenth of a square foot.

Show your work.

$$\frac{18}{3} \times 4 = 24$$

$$(\frac{24}{2})^2 \times \pi = 452.4$$

Or other valid process

Answer 452.4 square feet

GUIDE PAPER 1

Additional

56

A contractor is building the base of a circular fountain. On the blueprint, the base of the fountain has a diameter of 18 centimeters. The blueprint has a scale of three centimeters to four feet. What will be the actual area of the base of the fountain, in square feet, after it is built? Round your answer to the nearest tenth of a square foot.

Show your work.

scale factor - $\frac{1}{16}$

$$\text{Scale} - 3 \text{ cm} = 4 \text{ ft}$$

blueprint diameter - 18 cm

$$\frac{\text{cm}}{\text{ft}} \rightarrow \frac{3}{4} = \frac{18}{x}$$

$$\frac{72}{3} = \frac{3}{\frac{1}{16}} x$$

$$24 = x$$

diameter of actual = 24 feet

$$\frac{24}{2} = 12 \rightarrow \text{radius}$$

$$A = \pi r^2$$

$$A = \pi (12)^2$$

$$A = 144\pi$$

$$A = 452.4 \text{ ft}^2$$

$$\frac{1}{16} = \frac{18}{x} \quad x = 288$$

$$\begin{array}{r} \times 24 \\ 12 \\ \hline 288 \end{array}$$

24 = diameter (ft)

12 = radius (ft)

Answer 452.4

square feet

Score Point 2 (out of 2 points)

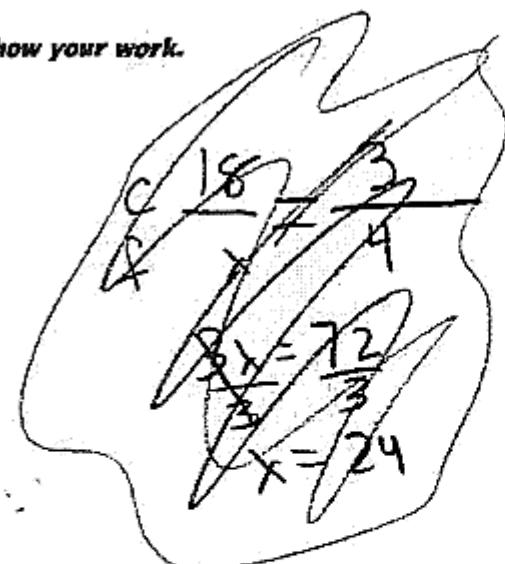
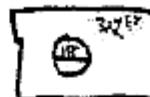
This response demonstrates a thorough understanding of the mathematical concepts in the task. A correct proportion is provided to determine the actual radius of the fountain. A correct procedure is used to determine the area of the fountain. The final answer is correctly rounded to the nearest tenth of a square foot.

GUIDE PAPER 2

56

A contractor is building the base of a circular fountain. On the blueprint, the base of the fountain has a diameter of 18 centimeters. The blueprint has a scale of three centimeters to four feet. What will be the actual area of the base of the fountain, in square feet, after it is built? Round your answer to the nearest tenth of a square foot.

Show your work.



$$\begin{array}{r} 3 \ 6 \ 9 \ 1 \ 2 \\ \times \ 1 \ 8 \\ \hline 1 \ 5 \ 1 \ 8 \end{array}$$

$$\begin{aligned} A &= \pi r^2 \\ A &= \pi 12^2 \\ A &= \pi 144 \\ A &= 452.4 \text{ sq ft} \end{aligned}$$

$$\begin{aligned} \frac{C}{3} &= \frac{18}{x} \\ 3x &= 72 \\ x &= 24 \end{aligned}$$

Answer

452.4
square feet

Score Point 2 (out of 2 points)

This response demonstrates a thorough understanding of the mathematical concepts in the task. A correct proportion is provided to determine the actual diameter of the fountain. A correct procedure is used to determine the area of the fountain. The final answer is correctly rounded to the nearest tenth of a square foot.

GUIDE PAPER 3

56

A contractor is building the base of a circular fountain. On the blueprint, the base of the fountain has a diameter of 18 centimeters. The blueprint has a scale of three centimeters to four feet. What will be the actual area of the base of the fountain, in square feet, after it is built? Round your answer to the nearest tenth of a square foot.

Show your work.

$$\begin{aligned} A &= \pi r^2 & d &= 29 & \frac{6}{35.8} \\ & & r &= 12 & \frac{6}{24} \\ A &= \pi \cdot 12^2 & A &= \pi^{144} \\ A &= 452.4 \text{ ft}^2 & A &= 452.4 \end{aligned}$$

Score Point 2 (out of 2 points)

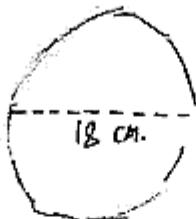
This response demonstrates a thorough understanding of the mathematical concepts in the task. The response provides correct work to determine the actual radius of the fountain. A correct procedure is used to determine the area of the fountain. The final answer is correctly rounded to the nearest tenth of a square foot.

GUIDE PAPER 4

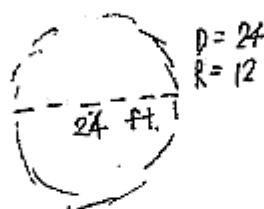
56

A contractor is building the base of a circular fountain. On the blueprint, the base of the fountain has a diameter of 18 centimeters. The blueprint has a scale of three centimeters to four feet. What will be the actual area of the base of the fountain, in square feet, after it is built? Round your answer to the nearest tenth of a square foot.
 $3\text{cm} = 4\text{ ft.}$

Show your work.



$$18 \div 3 = 6$$
$$6 \times 4 = 24 \text{ ft.}$$



$$A = \pi r^2$$
$$A = 3.14(12^2)$$
$$A = 3.14(144)$$

Answer 452.20 square feet

Score Point 1 (out of 2 points)

This response demonstrates a partial understanding of the mathematical concepts in the task. The work for determining the actual radius of the fountain is correct. An error is made when calculating the area of the fountain, resulting in incorrect final answer. The response uses 3.14 for the value of π : rounding is performed too early.

GUIDE PAPER 5

56

A contractor is building the base of a circular fountain. On the blueprint, the base of the fountain has a diameter of 18 centimeters. The blueprint has a scale of three centimeters to four feet. What will be the actual area of the base of the fountain, in square feet, after it is built? Round your answer to the nearest tenth of a square foot.

Show your work.

$$A = \pi r^2$$

$$A = \pi 9^2$$

$$A = \pi 81$$

$$A = 254.4690049$$

$$A = 254.5$$

Answer

254.5

square feet

Score Point 1 (out of 2 points)

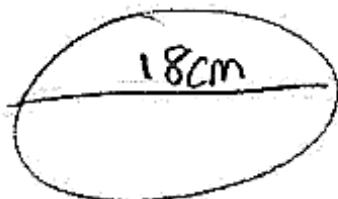
This response demonstrates a partial understanding of the mathematical concepts in the task. The work to determine the actual radius of the fountain is missing. Although a correct procedure is used to determine the area of the fountain, the response determines the area to scale in cm^2 and not in ft^2 (9 is used for the radius). The final answer is correctly rounded to the nearest tenths digit.

GUIDE PAPER 6

56

A contractor is building the base of a circular fountain. On the blueprint, the base of the fountain has a diameter of 18 centimeters. The blueprint has a scale of three centimeters to four feet. What will be the actual area of the base of the fountain, in square feet, after it is built? Round your answer to the nearest tenth of a square foot.

Show your work.



3
4

3cm : 4ft

18cm : 24

24

Answer

square feet

Score Point 1 (out of 2 points)

This response demonstrates a partial understanding of the mathematical concepts in the task. The response correctly determines the actual diameter of the fountain, however the work is incomplete: the area of the fountain is not calculated. The response addresses some elements of the task correctly.

GUIDE PAPER 7

56

A contractor is building the base of a circular fountain. On the blueprint, the base of the fountain has a diameter of 18 centimeters. The blueprint has a scale of three centimeters to four feet. What will be the actual area of the base of the fountain, in square feet, after it is built? Round your answer to the nearest tenth of a square foot.

Show your work.

$$\begin{aligned}A &= \pi r^2 \\A &= 3.14 \cdot 18 \\A &= 56.52 \cdot 18 \\A &= 1017.36\end{aligned}$$

Answer 1017.36 square feet

Score Point 0 (out of 2 points)

This response is not sufficient to demonstrate even a limited understanding of the mathematical concepts in the task. The response follows an incorrect procedure to determine the area of the fountain. Diameter rather than radius is used in the formula.

GUIDE PAPER 8

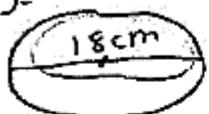
Additional

56

A contractor is building the base of a circular fountain. On the blueprint, the base of the fountain has a diameter of 18 centimeters. The blueprint has a scale of three centimeters to four feet. What will be the actual area of the base of the fountain, in square feet, after it is built? Round your answer to the nearest tenth of a square foot.

Show your work.

$$3\text{cm} = 4\text{ft}$$



$$\begin{array}{r} 318 \\ \times 4 \\ \hline 72 \end{array} \quad \begin{array}{r} 36 \\ 2\sqrt{72} \\ -6 \\ \hline 12 \\ -12 \\ \hline 0 \end{array}$$

$$A = \pi r^2$$

$$A = \pi (3)^2$$

$$3.14 \cdot 1296$$

$$4069.44$$

$$4069.4^2 \text{ ft}$$

Answer 4069.40 square feet

Score Point 0 (out of 2 points)

This response is not sufficient to demonstrate even a limited understanding of the mathematical concepts in the task. The response follows an incorrect procedure to determine the area of the fountain. A calculation error is made when determining the actual diameter and diameter rather than radius is used in the formula to determine the area.

EXEMPLARY RESPONSE

57

Explain the steps needed to determine the value of the expression shown below. Be sure to provide the correct value of the expression in your explanation.

$$\frac{\frac{1}{2}}{-\frac{2}{5}} \div \left(-\frac{1}{4}\right)$$

Answer:

Step 1 First divide $\frac{1}{2}$ and $-\frac{2}{5}$ by multiplying by the inverse of $-\frac{2}{5}$

$$\frac{1}{2} \div \left(-\frac{2}{5}\right) = \frac{1}{2} \times -\frac{5}{2} = -\frac{5}{4}$$

Step 2 Next add $-\frac{1}{4}$ to the result

$$-\frac{5}{4} + \left(-\frac{1}{4}\right) = -\frac{6}{4}$$

Step 3 Then reduce the improper fraction

$$-\frac{6}{4} = -1\frac{1}{2} \text{ or equivalent answer}$$

GUIDE PAPER 1

Additional

57

Explain the steps needed to determine the value of the expression shown below. Be sure to provide the correct value of the expression in your explanation.

$$\frac{\frac{1}{2}}{-\frac{2}{5}} + \left(-\frac{1}{4}\right)$$

Answer

First, you divide $\frac{1}{2}$ and $-\frac{2}{5}$. To do this, you get $-\frac{5}{2}$. Next, you add $-\frac{5}{2}$ to $-\frac{1}{4}$. You then get $-\frac{11}{4}$, which is $-1\frac{3}{4}$.

$$\frac{\frac{1}{2}}{-\frac{2}{5}} + \left(-\frac{1}{4}\right) = \frac{\frac{1}{2} \times -\frac{5}{2}}{-\frac{5}{2}} + \left(-\frac{1}{4}\right) = \frac{-\frac{5}{4}}{-\frac{5}{2}} + \left(-\frac{1}{4}\right) = \frac{1}{2} + \left(-\frac{1}{4}\right) = \frac{1}{4} = \boxed{-1\frac{3}{4}}$$

Score Point 2 (out of 2 points)

This response demonstrates a thorough understanding of the mathematical concepts in the task. The work correctly describes the order of operations and solves the expression correctly.

GUIDE PAPER 2

57

Explain the steps needed to determine the value of the expression shown below. Be sure to provide the correct value of the expression in your explanation.

$$\frac{\frac{1}{2}}{-\frac{2}{5}} + \left(-\frac{1}{4}\right)$$

Answer

$\frac{1}{2} = 0.5$ and $-\frac{2}{5} = -0.4$ and $-\frac{1}{4} = -0.25$.

Do 0.5 divided by -0.4, then add that to -0.25

The answer would be -1.5 or $-1\frac{1}{2}$

Score Point 2 (out of 2 points)

This response demonstrates a thorough understanding of the mathematical concepts in the task. All steps are explained correctly and the answer to the expression is correct.

GUIDE PAPER 3

57

Explain the steps needed to determine the value of the expression shown below. Be sure to provide the correct value of the expression in your explanation.

$$\frac{\frac{1}{2}}{-\frac{2}{5}} + \left(-\frac{1}{4}\right)$$

Answer

first you would divide
by $-\frac{2}{5}$ then add $-\frac{1}{4}$
which equals $-\frac{1}{2}$.

Score Point 2 (out of 2 points)

This response demonstrates a thorough understanding of the mathematical concepts in the task. All steps are explained correctly and the answer to the expression is correct.

GUIDE PAPER 4

57

Explain the steps needed to determine the value of the expression shown below. Be sure to provide the correct value of the expression in your explanation.

$$\frac{\frac{1}{2}}{-\frac{2}{5}} + \left(-\frac{1}{4}\right) = -\frac{1}{4}$$

Answer

To determine the value of the expression you need to find what the first part means ($\frac{1}{2} \div -\frac{2}{5}$) then you add the next part ($-\frac{1}{4}$) and you get $-\frac{1}{4}$.

Score Point 1 (out of 2 points)

This response demonstrates a partial understanding of the mathematical concepts in the task. Although the answer is correct, the explanation of the steps is incomplete. The response determines a correct intermediate value of $-1\frac{1}{4}$, but does not explain how this answer was obtained. The statement “add the next part ($-\frac{1}{4}$)” is unclear.

GUIDE PAPER 5

57

Explain the steps needed to determine the value of the expression shown below. Be sure to provide the correct value of the expression in your explanation.

$$\frac{\frac{1}{2}}{-\frac{2}{5}} + \left(-\frac{1}{4}\right)$$

Answer

$$\frac{\frac{1}{2}}{-\frac{2}{5}} + \frac{1}{4}$$

$$-\frac{5}{4} + \frac{1}{4} = -1$$

Score Point 1 (out of 2 points)

This response demonstrates a partial understanding of the mathematical concepts in the task. The work has a correct intermediate value of $-\frac{5}{4}$. Although the steps are listed correctly, there is an error in the second term ($\frac{1}{4}$ is missing a negative sign) that results in an incorrect answer.

GUIDE PAPER 6

57

Explain the steps needed to determine the value of the expression shown below. Be sure to provide the correct value of the expression in your explanation.

$$\frac{\frac{1}{2}}{-\frac{2}{5}} + \left(-\frac{1}{4}\right)$$

Answer

First you have to divide $\frac{1}{2}$ by $-\frac{2}{5}$.
Next you will add the answer
to $-\frac{1}{4}$.

Score Point 1 (out of 2 points)

This response demonstrates a partial understanding of the mathematical concepts in the task. The response correctly lists the steps to solve the expression; however the answer to the expression is not calculated.

GUIDE PAPER 7

57

Explain the steps needed to determine the value of the expression shown below. Be sure to provide the correct value of the expression in your explanation.

$$\frac{\frac{1}{2}}{-\frac{2}{5}} + \left(-\frac{1}{4}\right)$$

Answer

1/2 ÷ -2/5 plus - 1/4.

Score Point 0 (out of 2 points)

This response is not sufficient to demonstrate even a limited understanding of the mathematical concepts in the task. The work has no solution. The response, as written, is not specific enough about the order of operations. The response rewrites the expression in words and does not provide enough work to show even a limited understanding.

GUIDE PAPER 8

Additional

57

Explain the steps needed to determine the value of the expression shown below. Be sure to provide the correct value of the expression in your explanation.

$$\frac{\frac{1}{2}}{-\frac{2}{5}} + \left(-\frac{1}{4}\right)$$

Answer

First, you add $\frac{1}{4}$ and $\frac{1}{2}$ because $-\frac{1}{4}$ is in the parenthesis and then last you multiply the answer from $-\frac{1}{4} + \frac{1}{2}$ by $-\frac{2}{5}$.

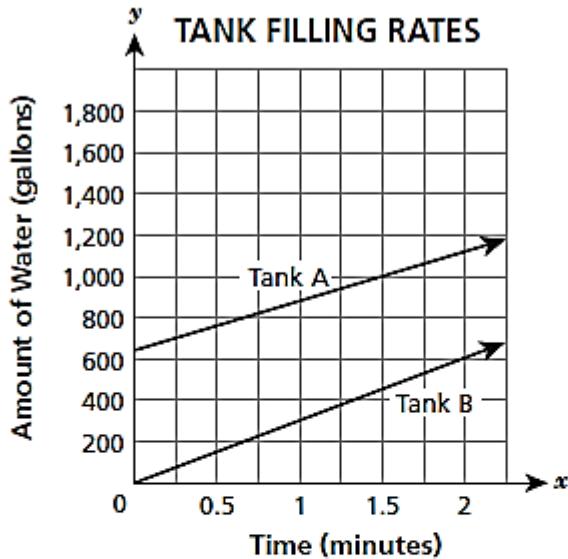
Score Point 0 (out of 2 points)

This response is not sufficient to demonstrate even a limited understanding of the mathematical concepts in the task. The work follows an incorrect procedure to solve the expression. There is an incorrect list of the order of operations: addition is done first, followed by division.

EXEMPLARY RESPONSE

58

The lines graphed below show the amounts of water in two tanks as they were being filled over time.



For each tank, explain whether or not there is a proportional relationship between the amount of water, in gallons, and the time, in minutes. If there is a proportional relationship, identify the unit rate. Use specific features of the graph to support your answer.

Tank A does not represent a proportional relationship because it does not pass through the

origin. Tank B does represent a proportional relationship because it is a straight line that

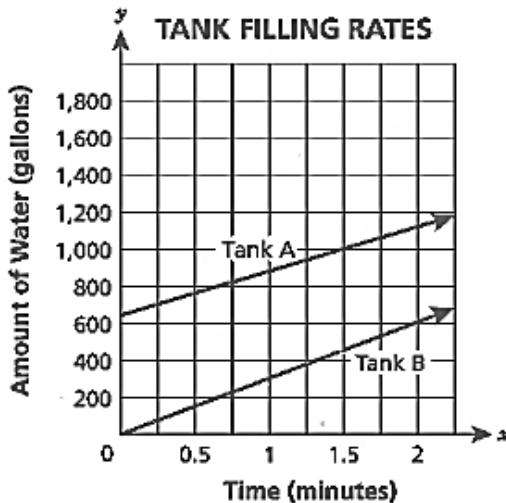
passes through the origin. The unit rate for Tank B is 300 gallons per minute.

GUIDE PAPER 1

Additional

58

The lines graphed below show the amounts of water in two tanks as they were being filled over time.



For each tank, explain whether or not there is a proportional relationship between the amount of water, in gallons, and the time, in minutes. If there is a proportional relationship, identify the unit rate. Use specific features of the graph to support your answer.

Tank A is not a proportional relationship because the specific feature of the graph that the line isn't connected to the origin. Tank B is proportional because it connects to the origin, it's a straight line, and it's proportional between the amount of water, in gallons, and the time, in minutes.

$$\frac{600 - 300}{2 - 1} = \frac{300}{1}$$

= TanR B
Proportional

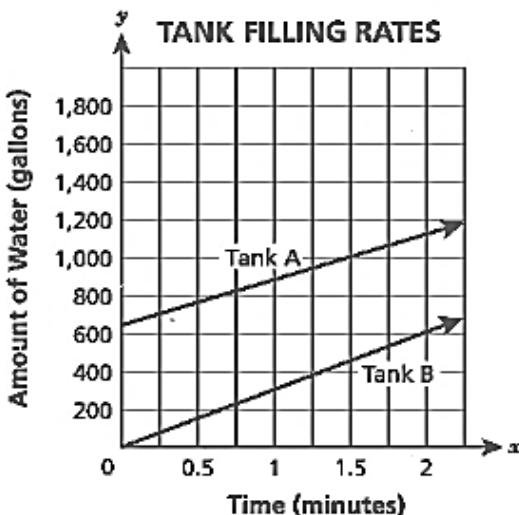
Score Point 3 (out of 3 points)

This response demonstrates a thorough understanding of the mathematical concepts in the task. The response correctly explains why Tank A does not have a proportional relationship. A correct explanation for Tank B that has a proportional relationship is provided. A correct unit rate for Tank B is calculated.

GUIDE PAPER 2

58

The lines graphed below show the amounts of water in two tanks as they were being filled over time.



For each tank, explain whether or not there is a proportional relationship between the amount of water, in gallons, and the time, in minutes. If there is a proportional relationship, identify the unit rate. Use specific features of the graph to support your answer.

Tank A has no proportional relationship because it starts all the way near 600 on the graph for tank B it is proportional because it starts at the origin and the unit rate is 300.

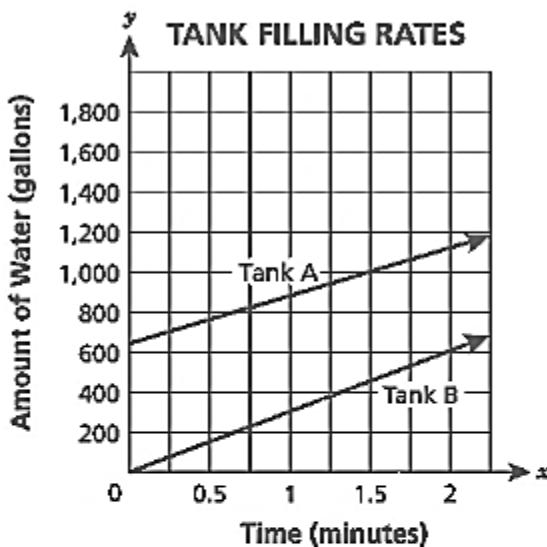
Score Point 3 (out of 3 points)

This response demonstrates a thorough understanding of the mathematical concepts in the task. The response correctly explains why Tank A does not have a proportional relationship and Tank B does have a proportional relationship. A correct unit rate for Tank B is calculated.

GUIDE PAPER 3

58

The lines graphed below show the amounts of water in two tanks as they were being filled over time.



For each tank, explain whether or not there is a proportional relationship between the amount of water, in gallons, and the time, in minutes. If there is a proportional relationship, identify the unit rate. Use specific features of the graph to support your answer.

Tank A isn't proportional but Tank B is. Tank A starts above 0. Tank B's unit rate is 300 gal of water per minute.

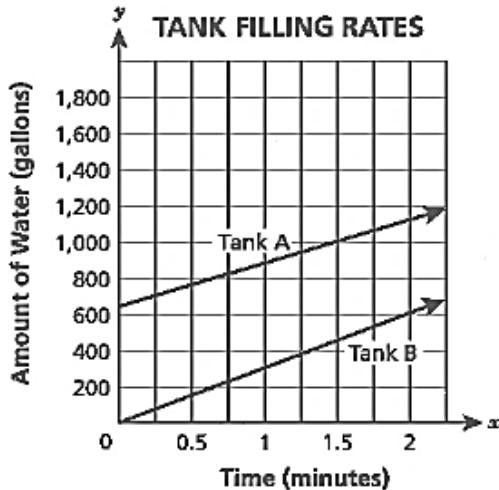
Score Point 3 (out of 3 points)

This response demonstrates a thorough understanding of the mathematical concepts in the task. The response provides a correct explanation for Tanks A and B and calculates a correct unit rate.

GUIDE PAPER 4

58

The lines graphed below show the amounts of water in two tanks as they were being filled over time.



For each tank, explain whether or not there is a proportional relationship between the amount of water, in gallons, and the time, in minutes. If there is a proportional relationship, identify the unit rate. Use specific features of the graph to support your answer.

Tank A is not proportional because it does not start at zero. Tank B is proportion. At one minute the tank is at 400 gallons and at 2 minutes the tank is at 800. Tank B is proportional and Tank A isn't.

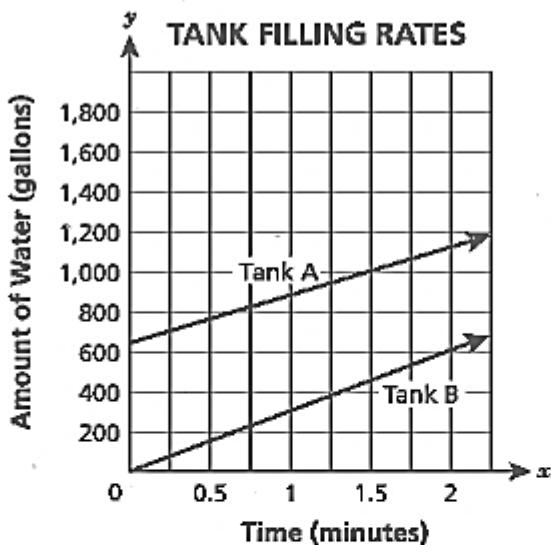
Score Point 2 (out of 3 points)

This response demonstrates a partial understanding of the mathematical concepts in the task. The response provides a correct explanation for Tanks A and B. Although the answer correctly refers to points on the graph for Tank B, the unit rate is not identified.

GUIDE PAPER 5

58

The lines graphed below show the amounts of water in two tanks as they were being filled over time.



For each tank, explain whether or not there is a proportional relationship between the amount of water, in gallons, and the time, in minutes. If there is a proportional relationship, identify the unit rate. Use specific features of the graph to support your answer.

Tank B is proportional because it goes through the origin. The unit rate is 300 gallons/min.

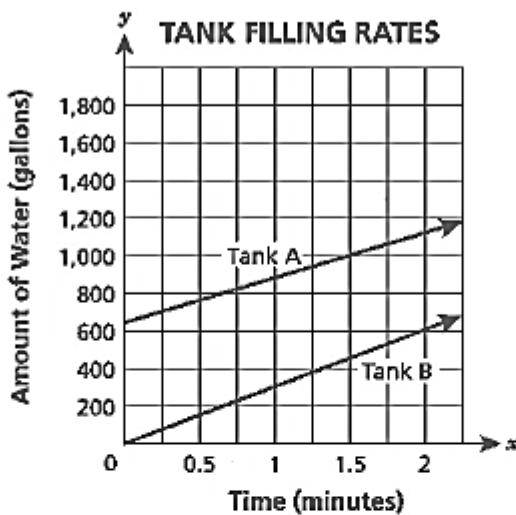
Score Point 2 (out of 3 points)

This response demonstrates a partial understanding of the mathematical concepts in the task. The response correctly explains why Tank B has a proportional relationship and the unit rate for Tank B is calculated correctly. The response does not provide any explanation for Tank A.

GUIDE PAPER 6

58

The lines graphed below show the amounts of water in two tanks as they were being filled over time.



For each tank, explain whether or not there is a proportional relationship between the amount of water, in gallons, and the time, in minutes. If there is a proportional relationship, identify the unit rate. Use specific features of the graph to support your answer.

Tank A is not proportional because
the line does not go through the origin.
Tank B is proportional because it is
a straight line that goes through the
origin.

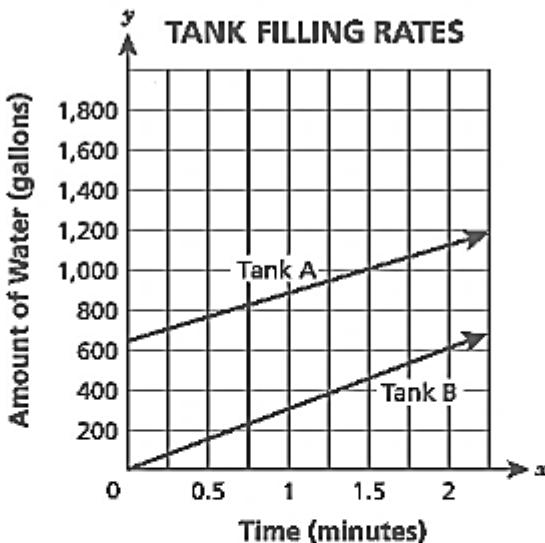
Score Point 2 (out of 3 points)

This response demonstrates a partial understanding of the mathematical concepts in the task. The response correctly explains why Tank A does not have a proportional relationship but Tank B has it. However, no unit rate for Tank B identified.

GUIDE PAPER 7

58

The lines graphed below show the amounts of water in two tanks as they were being filled over time.



For each tank, explain whether or not there is a proportional relationship between the amount of water, in gallons, and the time, in minutes. If there is a proportional relationship, identify the unit rate. Use specific features of the graph to support your answer.

Tank A No

Tank B Yes 300/1

Score Point 1 (out of 3 points)

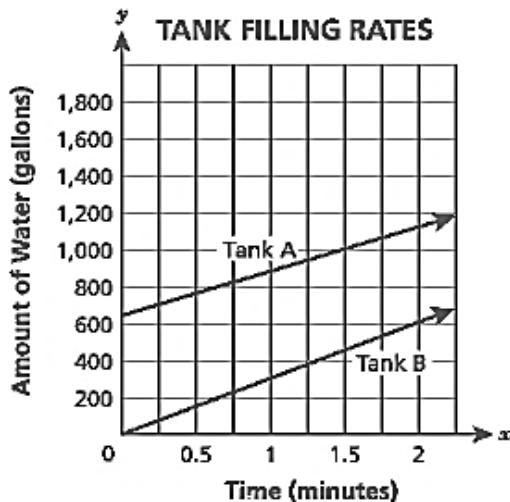
This response demonstrates a limited understanding of the mathematical concepts in the task. A correct answer for the unit rate of Tank B is calculated. The work correctly identifies Tank B as the one that has a proportional relationship and Tank A as the one that does not; however, no explanation is given to support the answers. The response addresses only some elements of the task correctly.

GUIDE PAPER 8

Additional

58

The lines graphed below show the amounts of water in two tanks as they were being filled over time.



For each tank, explain whether or not there is a proportional relationship between the amount of water, in gallons, and the time, in minutes. If there is a proportional relationship, identify the unit rate. Use specific features of the graph to support your answer.

Tank A is not proportional because the line doesn't go through the origin. Tank A is proportional because all the line goes straight up and starts on zero.

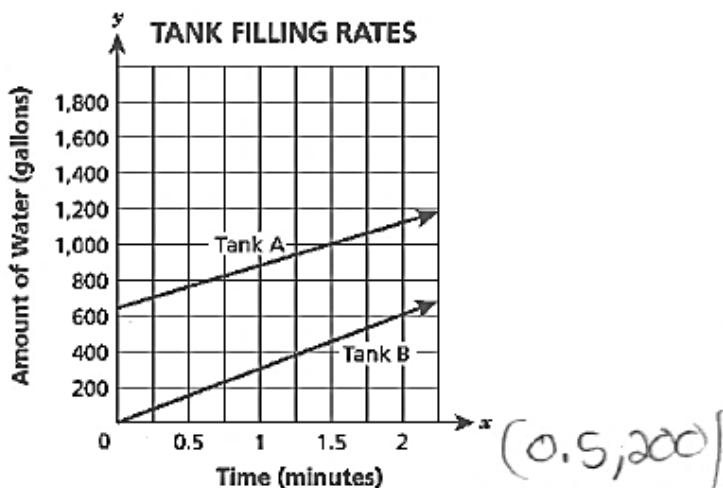
Score Point 1 (out of 3 points)

This response demonstrates a limited understanding of the mathematical concepts in the task. The response contradictorily mentions Tank A twice, likely the result of a typographical error in the second sentence. The unit rate for Tank B is not identified. The response, as written, shows only a limited understanding of the material.

GUIDE PAPER 9

58

The lines graphed below show the amounts of water in two tanks as they were being filled over time.



For each tank, explain whether or not there is a proportional relationship between the amount of water, in gallons, and the time, in minutes. If there is a proportional relationship, identify the unit rate. Use specific features of the graph to support your answer.

Tank A is not a proportional between amount and time. Tank B is unit rate is (0.5,200).
Tank B is proportional because it's straight and starts at zero.

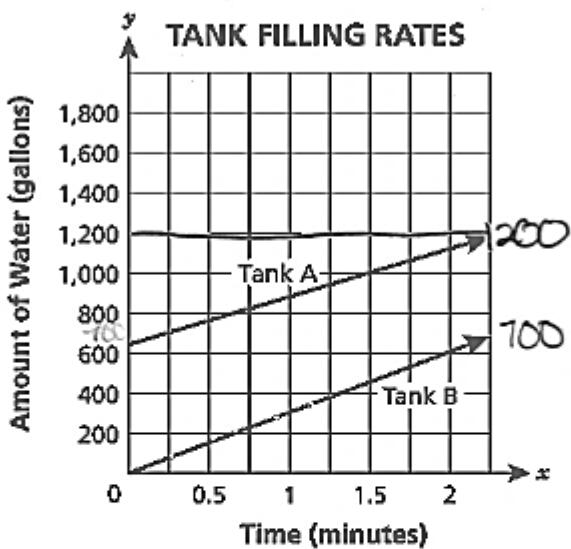
Score Point 1 (out of 3 points)

This response demonstrates a limited understanding of the mathematical concepts in the task. A correct explanation for Tank B is provided. An explanation for Tank A is incomplete. The unit rate for Tank B is calculated incorrectly.

GUIDE PAPER 10

58

The lines graphed below show the amounts of water in two tanks as they were being filled over time.



For each tank, explain whether or not there is a proportional relationship between the amount of water, in gallons, and the time, in minutes. If there is a proportional relationship, identify the unit rate. Use specific features of the graph to support your answer.

Tank B is the only proportional relationship

Score Point 0 (out of 3 points)

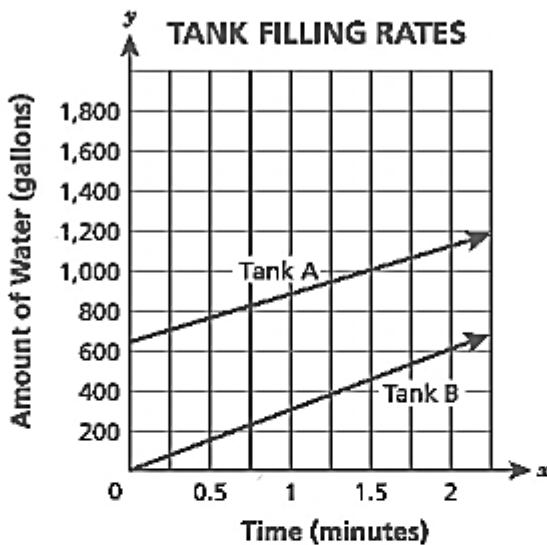
This response is not sufficient to demonstrate even a limited understanding of the mathematical concepts in the task. An explanation for Tanks A and B is missing and no unit rate is identified.

GUIDE PAPER 11

Additional

58

The lines graphed below show the amounts of water in two tanks as they were being filled over time.



For each tank, explain whether or not there is a proportional relationship between the amount of water, in gallons, and the time, in minutes. If there is a proportional relationship, identify the unit rate. Use specific features of the graph to support your answer.

Tank B does not have a proportional relationship because it is on zero. But Tank A has a proportional relationship because the amount of water is a number and the unit rate is 1200.

Score Point 0 (out of 3 points)

This response is not sufficient to demonstrate even a limited understanding of the mathematical concepts in the task. The work incorrectly identifies Tank A as the one that has a proportional relationship and Tank B as the one that does not. The unit rate is calculated incorrectly.

EXEMPLARY RESPONSE

59

Trent is fishing from a pier.

- The tip of his fishing rod is $53\frac{3}{4}$ feet above the surface of the water,
- The hook on the end of the fishing line is directly below the tip of the fishing rod $12\frac{2}{3}$ feet below the surface of the water.

Trent estimates that the distance between the tip of his fishing rod and the hook is less than 65 feet. Is Trent's estimate reasonable? Explain your answer.

Answer

It is not a reasonable estimate. If Trent knows that he has 53 plus part of a foot and 12 plus part of a foot, then the distance must be greater than 65, not less than 65. $53 + 12 = 65$

OR other valid explanation

Trent lets his hook drop another 10 inches. What is the distance, in feet, between the tip of the fishing rod and the hook? Do not round your answer.

Show your work.

$$\begin{aligned}53 + 12 + \frac{3}{4} + \frac{2}{3} + \frac{10}{12} \\53 + 12 + \frac{9}{12} + \frac{8}{12} + \frac{10}{12} \\65 + \frac{27}{12} = 65 + 2 + \frac{3}{12} = 67\frac{1}{4}\end{aligned}$$

OR other valid process

Answer $67\frac{1}{4}$ feet

OR other equivalent answer

GUIDE PAPER 1

Additional

59

Trent is fishing from a pier.

53.75

53 ft 9 inches

- The tip of his fishing rod is $53\frac{3}{4}$ feet above the surface of the water.

~~10 ft 8 inches~~
The hook on the end of the fishing line is directly below the tip of the fishing rod $12\frac{2}{3}$ feet below the surface of the water.

Trent estimates that the distance between the tip of his fishing rod and the hook is less than 65 feet. Is Trent's estimate reasonable? Explain your answer.

Answer

Trent's estimate is not reasonable because you will have to add the measurements together in order to find the distance between the fishing rod and hook. $53\frac{3}{4}$ is about 54 and $12\frac{2}{3}$ is about 13, so $54 + 13 = 67$ which is greater than 65.

Trent lets his hook drop another 10 inches. What is the distance, in feet, between the tip of the fishing rod and the hook? Do not round your answer.

Show your work.

$$53 \text{ feet and } 9 \text{ inches} = 53\frac{9}{12}$$
$$10 \text{ feet and } 8 \text{ inches} = 12\frac{2}{3}$$

$$12\frac{2}{3} + 53\frac{9}{12} = 66\frac{5}{12}$$

$$66\frac{5}{12} + \frac{10}{12} = 67\frac{3}{12} \text{ or } 67\frac{1}{4}$$

Answer $67\frac{1}{4}$ feet

Score Point 3 (out of 3 points)

This response demonstrates a thorough understanding of the mathematical concepts in the task. The response provides a correct explanation and correctly determines the new distance.

GUIDE PAPER 2

59

Trent is fishing from a pier.

53.75

- The tip of his fishing rod is $53\frac{3}{4}$ feet above the surface of the water.
- The hook on the end of the fishing line is directly below the tip of the fishing rod $12\frac{2}{3}$ feet below the surface of the water.

Trent estimates that the distance between the tip of his fishing rod and the hook is less than 65 feet. Is Trent's estimate reasonable? Explain your answer.

Answer

Trent's estimate isn't reasonable because if you just add the whole numbers it is 65 so if you include the fractions it will

Trent lets his hook drop another 10 inches. What is the distance, in feet, between the tip of the fishing rod and the hook? Do not round your answer. more than

Show your work.

$$\begin{array}{r} 13.5 \\ + 53.75 \\ \hline 67.25 \end{array}$$

$$12\frac{8}{12} = 10\text{ in}$$

$$2\frac{8}{12} \rightarrow 13\frac{1}{2}\text{ ft}$$

that and he estimated it to be less than 65 feet.

Answer 67.25 feet

Score Point 3 (out of 3 points)

This response demonstrates a thorough understanding of the mathematical concepts in the task. The response provides a correct explanation and correctly determines the new distance.

GUIDE PAPER 3

59

Trent is fishing from a pier.

- The tip of his fishing rod is $53\frac{3}{4}$ feet above the surface of the water.
- The hook on the end of the fishing line is directly below the tip of the fishing rod $12\frac{2}{3}$ feet below the surface of the water.

Trent estimates that the distance between the tip of his fishing rod and the hook is less than 65 feet. Is Trent's estimate reasonable? Explain your answer.

Answer

No, because $53\frac{3}{4}$ is already 65 so add the fractions, it would have to be more than 65.

Trent lets his hook drop another 10 inches. What is the distance, in feet, between the tip of the fishing rod and the hook? Do not round your answer.

Show your work.

$$\begin{aligned} & 53\text{ft } 9\text{in} \\ & 12\text{ft } 3\text{in} \\ & 65 \text{ in. } 66\text{ft } 5\text{in} \\ & 65 \text{ ft } 10\text{in} \\ & 67\text{ft } 5\text{in} \end{aligned}$$

Answer 67 feet

Score Point 3 (out of 3 points)

This response demonstrates a thorough understanding of the mathematical concepts in the task. The response provides a correct explanation and correctly determines the new distance.

GUIDE PAPER 4

59

Trent is fishing from a pier.

- The tip of his fishing rod is $53\frac{3}{4}$ feet above the surface of the water.
- The hook on the end of the fishing line is directly below the tip of the fishing rod $12\frac{2}{3}$ feet below the surface of the water.

Trent estimates that the distance between the tip of his fishing rod and the hook is less than 65 feet. Is Trent's estimate reasonable? Explain your answer.

Answer

No, Trent's explanation is not reasonable because by looking at it, you know it's at least going to be more than 65 ft.

Trent lets his hook drop another 10 inches. What is the distance, in feet, between the tip of the fishing rod and the hook? Do not round your answer.

Show your work.

$$\begin{array}{rcl} 12\frac{2}{3} + 10 \text{ inches} & & 13\frac{1}{2} + 53\frac{3}{4} \\ 12\frac{8}{12} + \frac{10}{12} & & 13\frac{2}{4} + 53\frac{3}{4} \\ 12\frac{18}{12} & & = 66\left(\frac{2}{4} + \frac{3}{4}\right) \\ 12 + 1\frac{1}{2} = & & = 66 + 1\frac{1}{4} \\ 13\frac{1}{2} & & = 67\frac{1}{4} \end{array}$$

Answer $67\frac{1}{4}$ feet

Score Point 2 (out of 3 points)

This response demonstrates a partial understanding of the mathematical concepts in the task. The response provides an incomplete explanation: the statement "by looking at it" is not sufficient to support the answer. The work to determine the new distance is correct. The response converts 10 inches to feet and has a correct solution.

GUIDE PAPER 5

59

Trent is fishing from a pier.

- The tip of his fishing rod is $53\frac{3}{4}$ feet above the surface of the water.
- The hook on the end of the fishing line is directly below the tip of the fishing rod $12\frac{2}{3}$ feet below the surface of the water.

Trent estimates that the distance between the tip of his fishing rod and the hook is less than 65 feet. Is Trent's estimate reasonable? Explain your answer.

Answer

Trent's reason is not reasonable because he forgot about the fractions. His answer would have been reasonable if he said more than 65 ft.

Trent lets his hook drop another 10 inches. What is the distance, in feet, between the tip of the fishing rod and the hook? Do not round your answer.

Show your work.

$$\begin{array}{r} 53 \frac{3}{4} \times \frac{5}{3} = \frac{9}{12} \\ + 12 \frac{2}{3} \times \frac{4}{4} = \frac{8}{12} \\ \hline 10 \\ 75 \frac{17}{12} \quad \frac{17}{12} = 1 \frac{5}{12} \quad + 1 \frac{5}{12} \\ \hline 76 \frac{5}{12} \end{array}$$

Answer $76\frac{5}{12}$ feet

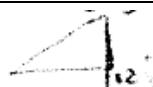
Score Point 2 (out of 3 points)

This response demonstrates a partial understanding of the mathematical concepts in the task. The response has a correct explanation of why the estimate is not reasonable. The work for determining the new distance is partially correct. The response does not convert 10 inches to feet. An error occurs when 10 is added to the other two numbers instead of $\frac{10}{12}$, resulting in an incorrect solution.

GUIDE PAPER 6

59

Trent is fishing from a pier.



- The tip of his fishing rod is $53\frac{3}{4}$ feet above the surface of the water.
- The hook on the end of the fishing line is directly below the tip of the fishing rod $12\frac{2}{3}$ feet below the surface of the water.

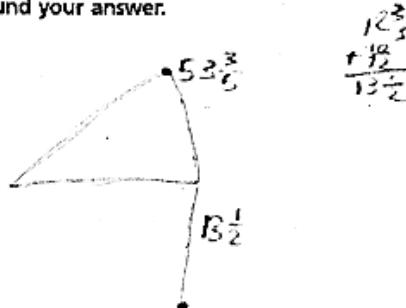
Trent estimates that the distance between the tip of his fishing rod and the hook is less than 65 feet. Is Trent's estimate reasonable? Explain your answer.

Answer

No, because both the numbers would add up to be more than 65. Also, if the numbers were estimated, it would be $54 + 13$ which equals 67.

Trent lets his hook drop another 10 inches. What is the distance, in feet, between the tip of the fishing rod and the hook? Do not round your answer.

Show your work.



Answer $67\frac{1}{10}$ feet

Score Point 2 (out of 3 points)

This response demonstrates a partial understanding of the mathematical concepts in the task. The response has a correct explanation as to why the estimate is not reasonable. The work for determining the new distance is partially correct. The response converts 10 inches to feet. There is a transcription error in the work when adding $(53\frac{3}{4} + 13\frac{1}{2})$, it should be $53\frac{3}{4}$ resulting in an incorrect answer. The response addresses most elements of the task correctly.

GUIDE PAPER 7

59

Trent is fishing from a pier.

- The tip of his fishing rod is $53\frac{3}{4}$ feet above the surface of the water.
- The hook on the end of the fishing line is directly below the tip of the fishing rod $12\frac{2}{3}$ feet below the surface of the water.

Trent estimates that the distance between the tip of his fishing rod and the hook is less than 65 feet. Is Trent's estimate reasonable? Explain your answer.

Answer

I added $53\frac{3}{4}$ and $12\frac{2}{3}$ and I got $66\frac{5}{12}$ so that's my answer.

$\frac{53\frac{3}{4}}{12\frac{2}{3}}$

Trent lets his hook drop another 10 inches. What is the distance, in feet, between the tip of the fishing rod and the hook? Do not round your answer.

Show your work.

$$\begin{array}{r} 66\frac{5}{12} \\ + 10 \\ \hline 76\frac{5}{12} \end{array}$$

Answer $76\frac{5}{12}$ feet

Score Point 1 (out of 3 points)

This response demonstrates a limited understanding of the mathematical concepts in the task. Although the work provides a correct value for the original distance, the explanation of why the estimate is unreasonable is missing. The work for determining the new distance is partially correct. The response does not convert 10 inches to feet. An error is made when 10 rather than $\frac{10}{12}$ is added. The response addresses some elements of the task correctly.

GUIDE PAPER 8

Additional

59

Trent is fishing from a pier.

$$\begin{array}{r} 153 \\ - 12 \\ \hline 65 \end{array}$$

- The tip of his fishing rod is $53\frac{3}{4}$ feet above the surface of the water.
- The hook on the end of the fishing line is directly below the tip of the fishing rod $12\frac{2}{3}$ feet below the surface of the water.

Trent estimates that the distance between the tip of his fishing rod and the hook is less than 65 feet. Is Trent's estimate reasonable? Explain your answer.

Answer

~~No~~ because when you add $53 + 12$ it equals
~~65~~ but you also have to bring the rest
of the fraction

Trent lets his hook drop another 10 inches. What is the distance, in feet, between the tip of the fishing rod and the hook? Do not round your answer.

Show your work.

$$\begin{array}{r} 53 \\ + 12 \\ \hline 65 \end{array}$$

Answer 85 feet

Score Point 1 (out of 3 points)

This response demonstrates a limited understanding of the mathematical concepts in the task. The response has a correct explanation as to why the estimate is not reasonable. The work for determining the new distance is incorrect. The response addresses some elements of the task correctly, and reflects a lack of essential understanding.

GUIDE PAPER 9

59

Trent is fishing from a pier.

- The tip of his fishing rod is $53\frac{3}{4}$ feet above the surface of the water.
- The hook on the end of the fishing line is directly below the tip of the fishing rod $12\frac{2}{3}$ feet below the surface of the water.

Trent estimates that the distance between the tip of his fishing rod and the hook is less than 65 feet. Is Trent's estimate reasonable? Explain your answer.

Answer

It is reasonable, as in order to find the distance from the tip to the hook you just subtract $12\frac{2}{3}$ from $53\frac{3}{4}$, resulting in a number less than 65.

Trent lets his hook drop another 10 inches. What is the distance, in feet, between the tip of the fishing rod and the hook? Do not round your answer.

Show your work.

$$12\frac{8}{12} + \frac{10}{12} = 13\frac{6}{12} \text{ (} 13 \text{ ft } 6 \text{ in)}$$

$$53\frac{9}{12} - 13\frac{6}{12} = 40\frac{1}{4} \text{ (} \frac{3}{12} \text{)}$$

$$40\frac{1}{4}$$

Answer $40\frac{1}{4}$ feet

Score Point 1 (out of 3 points)

This response demonstrates a limited understanding of the mathematical concepts in the task. The student misinterprets the question and has an incorrect explanation as to why the estimate is reasonable. The work for determining the new distance is partially correct. The response converts 10 inches to feet. Then, the new distance from the hook to the surface is calculated. The response subtracts $13\frac{6}{12}$ instead of adding it, resulting in incorrect answer. The response addresses some elements of the task correctly and reflects a lack of essential understanding.

GUIDE PAPER 10

59

Trent is fishing from a pier.

- The tip of his fishing rod is $53\frac{3}{4}$ feet above the surface of the water.
- The hook on the end of the fishing line is directly below the tip of the fishing rod $12\frac{2}{3}$ feet below the surface of the water.

Trent estimates that the distance between the tip of his fishing rod and the hook is less than 65 feet. Is Trent's estimate reasonable? Explain your answer.

Answer

Yes, Trent's estimate is not reasonable because the tip of his fishing rod is $53\frac{3}{4}$ feet above the surface.

Trent lets his hook drop another 10 inches. What is the distance, in feet, between the tip of the fishing rod and the hook? Do not round your answer.

Show your work.

$$\begin{array}{r} 53\frac{3}{4} \\ + 12\frac{2}{3} \\ \hline 41\frac{1}{2} \end{array}$$

Answer $51\frac{1}{2}$ feet

Score Point 0 (out of 3 points)

This response is not sufficient to demonstrate even a limited understanding of the mathematical concepts in the task. The explanation as to why the estimate is not reasonable is incomplete. The work for determining the new distance is incorrect. The work contains too many errors to receive any credit.

GUIDE PAPER 11

Additional

59

Trent is fishing from a pier.

- The tip of his fishing rod is $53\frac{3}{4}$ feet above the surface of the water.
- The hook on the end of the fishing line is directly below the tip of the fishing rod $12\frac{2}{3}$ feet below the surface of the water.

Trent estimates that the distance between the tip of his fishing rod and the hook is less than 65 feet. Is Trent's estimate reasonable? Explain your answer.

Answer

Yes because 12 and 53 without being a fraction equals exactly 65.

Trent lets his hook drop another 10 inches. What is the distance, in feet, between the tip of the fishing rod and the hook? Do not round your answer.

Show your work.

Answer _____ feet

Score Point 0 (out of 3 points)

This response is not sufficient to demonstrate even a limited understanding of the mathematical concepts in task. The explanation is incorrect. The work for determining the new distance is missing.

EXEMPLARY RESPONSE

60

The coach for a basketball team wants to buy new shoes for her 12 players.

Super Sports is offering a 20% discount on each pair of shoes, which were originally priced \$72.50. A 6.5% sales tax will be applied to the discounted price.

The same shoes are also available on Double Dribble's web site for \$54.75. A 9% processing fee will be applied to the cost of the shoes, plus a shipping fee of \$5.99 for each pair.

What is the difference in the total costs of the 12 pairs of shoes between the two stores?

Show your work.

$$12(72.50 \times 0.8 \times 1.065) = 741.24$$

$$12(54.75 \times 1.09 + 5.99) = 788.01$$

$$788.01 - 741.24 = 46.77$$

Or other valid process

GUIDE PAPER 1

Additional

60

The coach for a basketball team wants to buy new shoes for her 12 players.

Super Sports is offering a 20% discount on each pair of shoes, which were originally priced \$72.50. A 6.5% sales tax will be applied to the discounted price.

The same shoes are also available on Double Dribble's web site for \$54.75. A 9% processing fee will be applied to the cost of the shoes, plus a shipping fee of \$5.99 for each pair.

What is the difference in the total costs of the 12 pairs of shoes between the two stores?

Show your work.

$$72.5 \times 20\% = 58$$

$$58 \times 6.5\% = 3.77$$

$$61.77 \times 12 = 741.24$$

$$58 + 3.77 = 61.77$$

$$61.75 \times 9\% = 4.9275$$

$$61.75 + 4.9275 = 59.6775 + 5.99 = 65.6675$$

$$65.6675 \times 12 = 788.01$$

Answer S 46.77

Score Point 3 (out of 3 points)

This response demonstrates a thorough understanding of the mathematical concepts in the task. The response correctly calculates the cost of 12 pairs of shoes at Super Sports and on Double Dribble's web site. The answer for the difference in total costs between the two stores is correct.

GUIDE PAPER 2

60

The coach for a basketball team wants to buy new shoes for her 12 players.

Super Sports is offering a 20% discount on each pair of shoes, which were originally priced \$72.50. A 6.5% sales tax will be applied to the discounted price.

The same shoes are also available on Double Dribble's web site for \$54.75. A 9% processing fee will be applied to the cost of the shoes, plus a shipping fee of \$5.99 for each pair.

What is the difference in the total costs of the 12 pairs of shoes between the two stores?

Show your work.

SS

DD

$$\begin{array}{r} 54.75 \\ \times 12 \\ \hline 657 \\ 547 \\ \hline 657 \end{array}$$
$$\begin{array}{r} 72.50 \\ \times 12 \\ \hline 870 \\ 145 \\ \hline 870 \end{array}$$
$$\begin{array}{r} 870 \\ \times .2 \\ \hline 174 \end{array}$$
$$\begin{array}{r} 696 \\ \times .065 \\ \hline 45.24 \end{array}$$
$$696.00 + 45.24$$
$$741.24$$

Answer \$ 741.24

Score Point 3 (out of 3 points)

This response demonstrates a thorough understanding of the mathematical concepts in the task. The response correctly calculates the cost of 12 pairs of shoes at Super Sports and on Double Dribble's web site. The answer for the difference in total costs between the two stores is correct.

GUIDE PAPER 3

60

The coach for a basketball team wants to buy new shoes for her 12 players.

Super Sports is offering a 20% discount on each pair of shoes, which were originally priced \$72.50. A 6.5% sales tax will be applied to the discounted price.

The same shoes are also available on Double Dribble's web site for \$54.75. A 9% processing fee will be applied to the cost of the shoes, plus a shipping fee of \$5.99 for each pair.

What is the difference in the total costs of the 12 pairs of shoes between the two stores?

Show your work.

<u>Super Sports</u>	<u>Double Dribble's</u> 16.5% processing fee
$0.8(72.50)$	$\$54.75(1.09)$
$\$58 - \text{with discount}$	59.6775
$(0.5\%)(\$58)$	$+ 5.99 \rightarrow \text{shipping fee}$
$\frac{+ 58}{1.065(58)}$	$\frac{65.6675 \rightarrow \text{total per pair}}{\times 12}$
$\$61.77 \rightarrow \text{with sales tax}$	$\$788.01 \rightarrow \text{for 12 pairs}$
$\$61.77$	
$\times 12$	
$\underline{\$741.24} - \text{total for 12 pairs}$	
	$\$788.01$
	$\underline{- \$741.24}$
	$\boxed{\$46.77}$

Answer $\$46.77$

Score Point 3 (out of 3 points)

This response demonstrates a thorough understanding of the mathematical concepts in the task. The response correctly calculates the cost of 12 pairs of shoes at Super Sports and on Double Dribble's web site. The answer for the difference in total costs between the two stores is correct.

GUIDE PAPER 4

60

The coach for a basketball team wants to buy new shoes for her 12 players.

Super Sports is offering a 20% discount on each pair of shoes, which were originally priced \$72.50. A 6.5% sales tax will be applied to the discounted price.

The same shoes are also available on Double Dribble's web site for \$54.75. A 9% processing fee will be applied to the cost of the shoes, plus a shipping fee of \$5.99 for each pair.

What is the difference in the total costs of the 12 pairs of shoes between the two stores?

Show your work.

$$\begin{aligned}\text{Super Sports: } & 72.50 \times .20 = 14.50 \\ & 72.50 - 14.50 = 58.00 \\ & 58 \times .065 = 3.77 \\ & 58 + 3.77 = \$61.77\end{aligned}$$

\$741.24

$$\begin{aligned}\text{Double Dribbles: } & 54.75 \times .09 = 4.93 \\ & 54.75 + 4.93 = 59.68 \\ & 59.68 + 5.99 = \$65.67\end{aligned}$$

\$788.04

$$788.04 - 741.24 = 46.80$$

Answer \$ 46.80

Score Point 2 (out of 3 points)

This response demonstrates a partial understanding of the mathematical concepts in the task. The response correctly calculates the cost of 12 pairs of shoes at Super Sports. A correct procedure is provided to determine the cost of 12 pairs of shoes on Double Dribble's web site, however, early rounding results in an incorrect answer. The response correctly determines the difference in total costs between the two stores.

GUIDE PAPER 5

60

The coach for a basketball team wants to buy new shoes for her 12 players.

Super Sports is offering a 20% discount on each pair of shoes, which were originally priced \$72.50. A 6.5% sales tax will be applied to the discounted price.

The same shoes are also available on Double Dribble's web site for \$54.75. A 9% processing fee will be applied to the cost of the shoes, plus a shipping fee of \$5.99 for each pair.

What is the difference in the total costs of the 12 pairs of shoes between the two stores?

Show your work.

$$\begin{array}{r} 54.75 \times .09 = \\ + 4.93 \\ \hline \end{array}$$
$$\begin{array}{r} 72.50 \times .20 = 14.5 \\ - 14.50 \\ \hline 58 \times .05 = 3.77 \\ + 3.77 \\ \hline 61.77 \\ \downarrow \\ \text{SuperSports} \end{array}$$
$$\begin{array}{r} 59.66 \\ + 5.99 \\ \hline \end{array}$$
$$\begin{array}{r} 65.67 \xrightarrow{\text{Doub}} 65.67 \\ - 61.77 \\ \hline \end{array}$$

Answer: 3.90

Score Point 2 (out of 3 points)

This response demonstrates a partial understanding of the mathematical concepts in the task. The response correctly calculates the cost of one pair of shoes at Super Sports and on Double Dribble's web site. The response determines the difference in costs of only one pair of shoes. The response addresses most elements of the task correctly.

GUIDE PAPER 6

60

The coach for a basketball team wants to buy new shoes for her 12 players.

Super Sports is offering a 20% discount on each pair of shoes, which were originally priced \$72.50. A 6.5% sales tax will be applied to the discounted price.

The same shoes are also available on Double Dribble's web site for \$54.75. A 9% processing fee will be applied to the cost of the shoes, plus a shipping fee of \$5.99 for each pair.

What is the difference in the total costs of the 12 pairs of shoes between the two stores?

Show your work.

Handwritten calculations for the shoe purchase problem:

Left side (Super Sports):
Original price: \$72.50
Discount: 20%
Discounted price: $72.50 \times 0.2 = 14.5$
Subtract discount: $72.50 - 14.5 = 58.00$
Add sales tax: $58.00 + 14.5 = 72.50$
Multiply by 12: $72.50 \times 12 = 870.00$

Right side (Double Dribble):
Original price: \$54.75
Processing fee: 9%
Processing fee: $54.75 \times 0.09 = 4.9275$
Shipping fee: \$5.99
Total cost per pair: $54.75 + 4.9275 + 5.99 = 65.6675$
Multiply by 12: $65.6675 \times 12 = 788.01$

Answer \$ 578.94

Score Point 2 (out of 3 points)

This response demonstrates a partial understanding of the mathematical concepts in the task. The response correctly calculates the cost of 12 pairs of shoes at Super Sports. The processing fee is applied incorrectly ($54.750 + 49.275$) to the cost of a pair of shoes on Double Dribble's web site. The rest of the work is correct. The cost of one pair with a shipping fee is calculated, and then the total cost of 12 pairs of shoes is determined. The response determines the difference in total costs between the two stores. The response addresses most elements of the task correctly, and provides correct procedures.

GUIDE PAPER 7

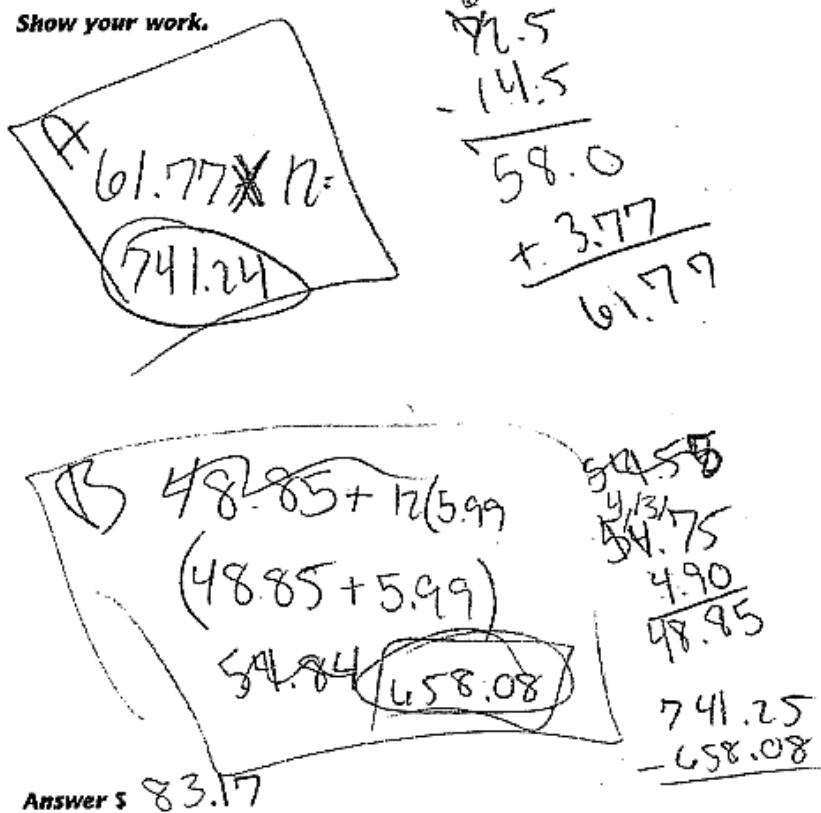
60

Super Sports is offering a 20% discount on each pair of shoes, which were originally priced \$72.50. A 6.5% sales tax will be applied to the discounted price.

The same shoes are also available on Double Dribble's web site for \$54.75. A 9% processing fee will be applied to the cost of the shoes, plus a shipping fee of \$5.99 for each pair.

What is the difference in the total costs of the 12 pairs of shoes between the two stores?

Show your work.



Answer \$ 83.17

Score Point 1 (out of 3 points)

This response demonstrates a limited understanding of the mathematical concepts in the task. The response correctly calculates the cost of 12 pairs of shoes at Super Sports. The processing fee is applied incorrectly ($54.75 - 4.90$) to the cost of a pair of shoes on Double Dribble's web site. The shipping fee is then correctly added to the cost of a pair of shoes and the result is correctly multiplied to determine the total cost of shoes on Double Dribble's web site. An error occurs when calculating the difference in total costs between the two stores: an incorrect value is used for the total cost at Super Sports, resulting in an incorrect answer. The response addresses some elements of the task correctly.

GUIDE PAPER 8

Additional

60

The coach for a basketball team wants to buy new shoes for her 12 players.

Super Sports is offering a 20% discount on each pair of shoes, which were originally priced \$72.50. A 6.5% sales tax will be applied to the discounted price.

The same shoes are also available on Double Dribble's web site for \$54.75. A 9% processing fee will be applied to the cost of the shoes, plus a shipping fee of \$5.99 for each pair.

What is the difference in the total costs of the 12 pairs of shoes between the two stores?

Show your work.

SS

$$\begin{aligned} \frac{14.50}{\$72.50} &= \frac{20}{100}x \\ -14.50 & \\ \hline 58.00 & \end{aligned}$$

DD

$$\begin{aligned} \frac{x}{\$4.75} &= \frac{9}{100} \\ 100x &= 49.275 \\ x &= 4.92 \\ 54.75 & \\ + 4.92 & \\ \hline 59.67 & \end{aligned}$$
$$\begin{aligned} 58.00 & \\ + 3.77 & \\ \hline \$61.77 & \end{aligned}$$
$$\begin{aligned} 131.55 & \\ - 61.77 & \\ \hline \$69.78 & \end{aligned}$$

$\frac{5.99}{12} = .4991666\ldots$

$$\begin{aligned} .4991666\ldots & \\ + 71.88 & \\ \hline \$72.37 & \end{aligned}$$

Answer \$

\$69.78

Score Point 1 (out of 3 points)

This response demonstrates a limited understanding of the mathematical concepts in the task. The response correctly calculates the cost of one pair of shoes at Super Sports. The procedure for determining the cost of 12 pairs of shoes on Double Dribble's web site is incorrect (the shipping fee of 12 pairs is added to the price of one pair). An incorrect procedure is used to determine the difference in total costs (the cost of one pair is subtracted from the cost of 12 pairs). The response addresses some elements of the task correctly but reflects a lack of essential understanding.

GUIDE PAPER 9

60

Super Sports is offering a 20% discount on each pair of shoes, which were originally priced \$72.50. A 6.5% sales tax will be applied to the discounted price.

The same shoes are also available on Double Dribble's web site for \$54.75. A 9% processing fee will be applied to the cost of the shoes, plus a shipping fee of \$5.99 for each pair.

What is the difference in the total costs of the 12 pairs of shoes between the two stores?

Show your work.

<i>Store 1</i>	<i>Store 2</i>
<i>Discount</i>	<i>Tax</i>
$\underline{20\% \text{ of } 72.50 = .50}$	$\underline{10\% \text{ of } 54.75 = .5475}$
$\frac{x}{72.50} = \frac{.8}{1.00}$ $x = 72.50 \times .8$ $x = 58$ $x + .50 = 58.50$	$\frac{x}{54.75} = \frac{1.09}{1.00}$ $1.09x = 54.75$ $x = 54.75 \div 1.09$ $x = 50.71$ $x + 5.99 = 56.70$ $x + 5.99 = 56.70$ $x + 5.99 = 62.69$ $x + 5.99 = 62.69$ $x + 5.99 = 68.68$ $x + 5.99 = 68.68$ $x + 5.99 = 74.67$ $x + 5.99 = 74.67$ $x + 5.99 = 80.66$ $x + 5.99 = 80.66$ $x + 5.99 = 86.65$ $x + 5.99 = 86.65$ $x + 5.99 = 92.64$ $x + 5.99 = 92.64$ $x + 5.99 = 98.63$ $x + 5.99 = 98.63$ $x + 5.99 = 104.62$ $x + 5.99 = 104.62$ $x + 5.99 = 110.61$ $x + 5.99 = 110.61$ $x + 5.99 = 116.60$ $x + 5.99 = 116.60$ $x + 5.99 = 122.59$ $x + 5.99 = 122.59$ $x + 5.99 = 128.58$ $x + 5.99 = 128.58$ $x + 5.99 = 134.57$ $x + 5.99 = 134.57$ $x + 5.99 = 140.56$ $x + 5.99 = 140.56$ $x + 5.99 = 146.55$ $x + 5.99 = 146.55$ $x + 5.99 = 152.54$ $x + 5.99 = 152.54$ $x + 5.99 = 158.53$ $x + 5.99 = 158.53$ $x + 5.99 = 164.52$ $x + 5.99 = 164.52$ $x + 5.99 = 170.51$ $x + 5.99 = 170.51$ $x + 5.99 = 176.50$ $x + 5.99 = 176.50$ $x + 5.99 = 182.49$ $x + 5.99 = 182.49$ $x + 5.99 = 188.48$ $x + 5.99 = 188.48$ $x + 5.99 = 194.47$ $x + 5.99 = 194.47$ $x + 5.99 = 200.46$ $x + 5.99 = 200.46$ $x + 5.99 = 206.45$ $x + 5.99 = 206.45$ $x + 5.99 = 212.44$ $x + 5.99 = 212.44$ $x + 5.99 = 218.43$ $x + 5.99 = 218.43$ $x + 5.99 = 224.42$ $x + 5.99 = 224.42$ $x + 5.99 = 230.41$ $x + 5.99 = 230.41$ $x + 5.99 = 236.40$ $x + 5.99 = 236.40$ $x + 5.99 = 242.39$ $x + 5.99 = 242.39$ $x + 5.99 = 248.38$ $x + 5.99 = 248.38$ $x + 5.99 = 254.37$ $x + 5.99 = 254.37$ $x + 5.99 = 260.36$ $x + 5.99 = 260.36$ $x + 5.99 = 266.35$ $x + 5.99 = 266.35$ $x + 5.99 = 272.34$ $x + 5.99 = 272.34$ $x + 5.99 = 278.33$ $x + 5.99 = 278.33$ $x + 5.99 = 284.32$ $x + 5.99 = 284.32$ $x + 5.99 = 290.31$ $x + 5.99 = 290.31$ $x + 5.99 = 296.30$ $x + 5.99 = 296.30$ $x + 5.99 = 302.29$ $x + 5.99 = 302.29$ $x + 5.99 = 308.28$ $x + 5.99 = 308.28$ $x + 5.99 = 314.27$ $x + 5.99 = 314.27$ $x + 5.99 = 320.26$ $x + 5.99 = 320.26$ $x + 5.99 = 326.25$ $x + 5.99 = 326.25$ $x + 5.99 = 332.24$ $x + 5.99 = 332.24$ $x + 5.99 = 338.23$ $x + 5.99 = 338.23$ $x + 5.99 = 344.22$ $x + 5.99 = 344.22$ $x + 5.99 = 350.21$ $x + 5.99 = 350.21$ $x + 5.99 = 356.20$ $x + 5.99 = 356.20$ $x + 5.99 = 362.19$ $x + 5.99 = 362.19$ $x + 5.99 = 368.18$ $x + 5.99 = 368.18$ $x + 5.99 = 374.17$ $x + 5.99 = 374.17$ $x + 5.99 = 380.16$ $x + 5.99 = 380.16$ $x + 5.99 = 386.15$ $x + 5.99 = 386.15$ $x + 5.99 = 392.14$ $x + 5.99 = 392.14$ $x + 5.99 = 398.13$ $x + 5.99 = 398.13$ $x + 5.99 = 404.12$ $x + 5.99 = 404.12$ $x + 5.99 = 410.11$ $x + 5.99 = 410.11$ $x + 5.99 = 416.10$ $x + 5.99 = 416.10$ $x + 5.99 = 422.09$ $x + 5.99 = 422.09$ $x + 5.99 = 428.08$ $x + 5.99 = 428.08$ $x + 5.99 = 434.07$ $x + 5.99 = 434.07$ $x + 5.99 = 440.06$ $x + 5.99 = 440.06$ $x + 5.99 = 446.05$ $x + 5.99 = 446.05$ $x + 5.99 = 452.04$ $x + 5.99 = 452.04$ $x + 5.99 = 458.03$ $x + 5.99 = 458.03$ $x + 5.99 = 464.02$ $x + 5.99 = 464.02$ $x + 5.99 = 470.01$ $x + 5.99 = 470.01$ $x + 5.99 = 476.00$ $x + 5.99 = 476.00$ $x + 5.99 = 481.99$ $x + 5.99 = 481.99$ $x + 5.99 = 487.98$ $x + 5.99 = 487.98$ $x + 5.99 = 493.97$ $x + 5.99 = 493.97$ $x + 5.99 = 499.96$ $x + 5.99 = 499.96$ $x + 5.99 = 505.95$ $x + 5.99 = 505.95$ $x + 5.99 = 511.94$ $x + 5.99 = 511.94$ $x + 5.99 = 517.93$ $x + 5.99 = 517.93$ $x + 5.99 = 523.92$ $x + 5.99 = 523.92$ $x + 5.99 = 529.91$ $x + 5.99 = 529.91$ $x + 5.99 = 535.90$ $x + 5.99 = 535.90$ $x + 5.99 = 541.89$ $x + 5.99 = 541.89$ $x + 5.99 = 547.88$ $x + 5.99 = 547.88$ $x + 5.99 = 553.87$ $x + 5.99 = 553.87$ $x + 5.99 = 559.86$ $x + 5.99 = 559.86$ $x + 5.99 = 565.85$ $x + 5.99 = 565.85$ $x + 5.99 = 571.84$ $x + 5.99 = 571.84$ $x + 5.99 = 577.83$ $x + 5.99 = 577.83$ $x + 5.99 = 583.82$ $x + 5.99 = 583.82$ $x + 5.99 = 589.81$ $x + 5.99 = 589.81$ $x + 5.99 = 595.80$ $x + 5.99 = 595.80$ $x + 5.99 = 601.79$ $x + 5.99 = 601.79$ $x + 5.99 = 607.78$ $x + 5.99 = 607.78$ $x + 5.99 = 613.77$ $x + 5.99 = 613.77$ $x + 5.99 = 619.76$ $x + 5.99 = 619.76$ $x + 5.99 = 625.75$ $x + 5.99 = 625.75$ $x 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1075.00$ $x + 5.99 = 1075.00$ $x + 5.99 = 1081.99$ $x + 5.99 = 1081.99$ $x + 5.99 = 1087.98$ $x + 5.99 = 1087.98$ $x + 5.99 = 1093.97$ $x + 5.99 = 1093.97$ $x + 5.99 = 1099.96$ $x + 5.99 = 1099.96$ $x + 5.99 = 1105.95$ $x + 5.99 = 1105.95$ $x + 5.99 = 1111.94$ $x + 5.99 = 1111.94$ $x + 5.99 = 1117.93$ $x + 5.99 = 1117.93$ $x + 5.99 = 1123.92$ $x + 5.99 = 1123.92$ $x + 5.99 = 1129.91$ $x + 5.99 = 1129.91$ $x + 5.99 = 1135.90$ $x + 5.99 = 1135.90$ $x + 5.99 = 1141.89$ $x + 5.99 = 1141.89$ $x + 5.99 = 1147.88$ $x + 5.99 = 1147.88$ $x + 5.99 = 1153.87$ $x + 5.99 = 1153.87$ $x + 5.99 = 1159.86$ $x + 5.99 = 1159.86$ $x + 5.99 = 1165.85$ $x + 5.99 = 1165.85$ $x + 5.99 = 1171.84$ $x + 5.99 = 1171.84$ $x + 5.99 = 1177.83$ $x + 5.99 = 1177.83$ $x + 5.99 = 1183.82$ $x + 5.99 = 1183.82$ $x + 5.99 = 1189.81$ $x + 5.99 = 1189.81$ $x + 5.99 = 1195.80$ $x + 5.99 = 1195.80$ $x + 5.99 = 1201.79$ $x + 5.99 = 1201.79$ $x + 5.99 = 1207.78$ $x + 5.99 = 1207.78$ $x + 5.99 = 1213.77$ $x + 5.99 = 1213.77$ $x + 5.99 = 1219.76$ $x + 5.99 = 1219.76$ $x + 5.99 = 1225.75$ $x + 5.99 = 1225.75$ $x + 5.99 = 1231.74$ $x + 5.99 = 1231.74$ $x + 5.99 = 1237.73$ $x + 5.99 = 1237.73$ $x + 5.99 = 1243.72$ $x + 5.99 = 1243.72$ $x + 5.99 = 1249.71$ $x + 5.99 = 1249.71$ $x + 5.99 = 1255.70$ $x + 5.99 = 1255.70$ $x + 5.99 = 1261.69$ $x + 5.99 = 1261.69$ $x + 5.99 = 1267.68$ $x + 5.99 = 1267.68$ $x + 5.99 = 1273.67$ $x + 5.99 = 1273.67$ $x + 5.99 = 1279.66$ $x + 5.99 = 1279.66$ $x + 5.99 = 1285.65$ $x + 5.99 = 1285.65$ $x + 5.99 = 1291.64$ $x + 5.99 = 1291.64$ $x + 5.99 = 1297.63$ $x + 5.99 =$

GUIDE PAPER 10

60

The coach for a basketball team wants to buy new shoes for her 12 players.

Super Sports is offering a 20% discount on each pair of shoes, which were originally priced \$72.50. A 6.5% sales tax will be applied to the discounted price.

The same shoes are also available on Double Dribble's web site for \$54.75. A 9% processing fee will be applied to the cost of the shoes, plus a shipping fee of \$5.99 for each pair.

What is the difference in the total costs of the 12 pairs of shoes between the two stores?

Show your work.

Handwritten calculations for Super Sports (SS) and Double Dribble (DD) to find the difference in total costs for 12 pairs of shoes.

Super Sports (SS) Calculations:

- Original price per shoe: \$72.50
- Discounted price per shoe: $72.50 \times 0.80 = 58.00$
- Price per shoe including 6.5% sales tax: $58.00 \times 1.065 = 61.77$
- Total cost for 12 pairs: $61.77 \times 12 = 741.24$

Double Dribble (DD) Calculations:

- Price per shoe including 9% processing fee and \$5.99 shipping: $54.75 + 5.99 + 0.09 \times 54.75 = 64.91$
- Total cost for 12 pairs: $64.91 \times 12 = 779.01$

Difference:

$$\begin{array}{r} 779.01 \\ - 741.24 \\ \hline 37.56 \end{array}$$

Answer \$ **37.56**

Score Point 0 (out of 3 points)

This response is not sufficient to demonstrate even a limited understanding of the mathematical concepts in the task. Although the answer for the total cost of shoes at Super Sports is correct, there is no work to support the answer. The work for determining the total cost of shoes on Double Dribble's web site is missing. The response does not provide sufficient work to show even a limited understanding of the concepts in the task.

GUIDE PAPER 11

Additional

60

The coach for a basketball team wants to buy new shoes for her 12 players.

Super Sports is offering a 20% discount on each pair of shoes, which were originally priced \$72.50. A 6.5% sales tax will be applied to the discounted price.

The same shoes are also available on Double Dribble's web site for \$54.75. A 9% processing fee will be applied to the cost of the shoes, plus a shipping fee of \$5.99 for each pair.

What is the difference in the total costs of the 12 pairs of shoes between the two stores?

Show your work.

$$\begin{array}{r} \text{A: } 72.50 - 20\% = 72.30 \\ \quad \quad \quad \text{For each pair.} \\ \quad \quad \quad 72.30 \end{array}$$

$$\begin{array}{r} 72.50 \xrightarrow{1} 72.30 \xrightarrow{2} 72.10 \xrightarrow{3} 71.90 \xrightarrow{4} 71.70 \xrightarrow{5} 71.50 \xrightarrow{6} \\ 71.30 \xrightarrow{7} 71.10 \xrightarrow{8} 70.90 \xrightarrow{9} 70.70 \xrightarrow{10} 70.50 \xrightarrow{11} 70.30 \xrightarrow{12} \end{array}$$

$$\begin{array}{r} 70.30 + 6.5\% = 70.95 \\ \text{A: } 70.95 \end{array} \quad \begin{array}{r} \text{B. } 54.75 + 9\% = 54.84 \\ \begin{array}{r} 54.84 \\ + 5.99 \\ \hline 60.83 \end{array} \end{array}$$

$$\begin{array}{r} \text{A: } \$70.95 \\ \text{B: } \$60.83 \\ \boxed{\$9.12} \end{array}$$

Answer \$ 9.12

Score Point 0 (out of 3 points)

This response is not sufficient to demonstrate even a limited understanding of the mathematical concepts in the task. The response follows an incorrect procedure to determine the total cost of 12 pairs of shoes at Super Sports and on Double Dribble's web site. A calculation error is made when determining the difference in total costs between the two stores.

EXEMPLARY RESPONSE

61

Ruby's Market sells smoked meats by the pound. The prices for several different meats are shown in the table.

RUBY'S MARKET PRICES

Type of Meat	Price per pound
Beef	\$4.25
Chicken	\$2.50
Sausage	\$3.25
Turkey	\$2.85

How much more does $1\frac{1}{4}$ pounds of beef cost than $1\frac{1}{4}$ pounds of turkey?

Show your work.

$$1\frac{1}{4} \times 4.25 - 1\frac{1}{4} \times 2.85$$

$$= 5.31 - 3.56 = 1.75 \quad \text{or other valid response}$$

Answer \$ 1.75

Brad has \$10 to spend at Ruby's. He orders $\frac{1}{2}$ pound of sausage and $1\frac{1}{4}$ pounds of chicken. How much money will Brad have left after he pays for this order?

Show your work.

$$10 - (\frac{1}{2} \times 3.25 + 1\frac{1}{4} \times 2.5)$$

$$= 10 - (1.63 + 3.13)$$

$$= 10 - 4.76 = 5.24 \quad \text{or other valid response}$$

Answer \$ 5.24

GUIDE PAPER 1

Additional

61

Ruby's Market sells smoked meats by the pound. The prices for several different meats are shown in the table.

RUBY'S MARKET PRICES

Type of Meat	Price per pound
Beef	\$4.25
Chicken	\$2.50
Sausage	\$3.25
Turkey	\$2.85

How much more does $1\frac{1}{4}$ pounds of beef cost than $1\frac{1}{4}$ pounds of turkey?

Show your work.

$$\begin{array}{r} 1.25 \times 4.25 - 1.25 \times 2.85 \\ \hline - 5.31 - 3.56 \\ \hline 1.75 \end{array}$$

Answer \$1.75 more

Brad has \$10 to spend at Ruby's. He orders $\frac{1}{2}$ pound of sausage and $1\frac{1}{4}$ pounds of chicken. How much money will Brad have left after he pays for this order?

Show your work.

$$\begin{array}{r} 10 - ((5 \times 3.25) + (1.25 \times 2.5)) \\ 10 - (16.25 + 3.13) \\ \hline 10 - 4.76 \\ \hline 5.25 \end{array}$$

Answer \$5.24 left

Score Point 3 (out of 3 points)

This response demonstrates a thorough understanding of the mathematical concepts in the task. The response follows a correct procedure to determine the difference in costs of $1\frac{1}{4}$ pounds of beef and $1\frac{1}{4}$ pounds of turkey. A correct procedure is used when calculating how much money is left after ordering $\frac{1}{2}$ pound of sausage and $1\frac{1}{4}$ pounds of chicken. The lines used in the response do not indicate division; this is an inconsequential error that does not detract from the correct solution.

GUIDE PAPER 2

61

Ruby's Market sells smoked meats by the pound. The prices for several different meats are shown in the table.

RUBY'S MARKET PRICES

Type of Meat	Price per pound
Beef	\$4.25
Chicken	\$2.50
Sausage	\$3.25
Turkey	\$2.85

How much more does $1\frac{1}{4}$ pounds of beef cost than $1\frac{1}{4}$ pounds of turkey?

Show your work.

$$\begin{array}{r} \frac{25}{100} = \frac{x}{4.25} \\ 4.25 \quad 25 \\ + 1.0625 \quad \cancel{100} \\ \hline 2.85 \end{array} \quad \begin{array}{r} 5.3125 \\ - 3.5625 \\ \hline \end{array}$$
$$\begin{array}{r} \frac{100x}{100} = \frac{156.25}{100} \\ x = 1.5625 \\ \text{Answer } \$1.75 \end{array} \quad \begin{array}{r} 1.5625 \\ - 1.00 \\ \hline .5625 \\ - .50 \\ \hline .0625 \\ \times 100 \\ \hline .0625 \\ - .00 \\ \hline .0625 \\ \times 100 \\ \hline .625 \\ - .50 \\ \hline .125 \\ \times 100 \\ \hline 1.25 \\ - 1.00 \\ \hline .25 \\ \times 100 \\ \hline 2.5 \end{array}$$

Brad has \$10 to spend at Ruby's. He orders $\frac{1}{2}$ pound of sausage and $1\frac{1}{4}$ pounds of chicken. How much money will Brad have left after he pays for this order?

Show your work.

$$\begin{array}{r} 10.00 \\ - 4.75 \\ \hline 5.25 \end{array} \quad \begin{array}{r} 4.75 \\ 1.625 \\ \hline 3.125 \end{array}$$

Answer \$5.25

Score Point 3 (out of 3 points)

This response demonstrates a thorough understanding of the mathematical concepts in the task. The response follows a correct procedure to determine the difference in costs of meats. A correct procedure is provided when calculating the amount of money left after placing the order.

GUIDE PAPER 3

61

Ruby's Market sells smoked meats by the pound. The prices for several different meats are shown in the table.

RUBY'S MARKET PRICES

Type of Meat	Price per pound
Beef	\$4.25
Chicken	\$2.50
Sausage	\$3.25
Turkey	\$2.85

How much more does $1\frac{1}{4}$ pounds of beef cost than $1\frac{1}{4}$ pounds of turkey?

Show your work.

$$\begin{array}{r} 5.31 \\ - 3.50 \\ \hline 1.75 \end{array}$$

Answer 5 1.75

Brad has \$10 to spend at Ruby's. He orders $\frac{1}{2}$ pound of sausage and $1\frac{1}{4}$ pounds of chicken. How much money will Brad have left after he pays for this order?

Show your work.

$$\begin{array}{r} 1.63 \\ + 3.13 \\ \hline 4.76 \end{array} \quad \begin{array}{r} 10.00 \\ - 4.76 \\ \hline 5.24 \end{array}$$

Answer 5 5.24

Score Point 3 (out of 3 points)

This response demonstrates a thorough understanding of the mathematical concepts in the task. The response follows a correct procedure to determine the difference in costs of meats. A correct procedure is provided when calculating the amount of money left after placing the order.

GUIDE PAPER 4

61

Ruby's Market sells smoked meats by the pound. The prices for several different meats are shown in the table.

RUBY'S MARKET PRICES

Type of Meat	Price per pound
Beef	\$4.25
Chicken	\$2.50
Sausage	\$3.25
Turkey	\$2.85

How much more does $1\frac{1}{4}$ pounds of beef cost than $1\frac{1}{4}$ pounds of turkey?

Show your work.

$$\begin{array}{r} 4.25 \\ \times 1.25 \\ \hline 5.31 \\ \end{array} \quad \begin{array}{r} 2.85 \\ \times 1.25 \\ \hline 3.56 \\ \end{array}$$

Answer: 1.75

Brad has \$10 to spend at Ruby's. He orders $\frac{1}{2}$ pound of sausage and $1\frac{1}{4}$ pounds of chicken. How much money will Brad have left after he pays for this order?

Show your work.

$$\begin{array}{r} 3.25 \\ \times .50 \\ \hline 1.62 \\ \end{array} \quad \begin{array}{r} 2.50 \\ \times 1.25 \\ \hline 3.12 \\ + 1.62 \\ \hline 4.74 \\ \end{array} \quad \begin{array}{r} 10.00 \\ - 4.74 \\ \hline 5.26 \\ \end{array}$$

Answer: 5.26

Score Point 2 (out of 3 points)

This response demonstrates a partial understanding of the mathematical concepts in the task. The response follows a correct procedure to determine the difference in costs of meats. A correct procedure is provided when calculating how much money is left after placing the order; however truncation errors occur when determining the cost of meats, resulting in an incorrect solution.

GUIDE PAPER 5

61

Ruby's Market sells smoked meats by the pound. The prices for several different meats are shown in the table.

RUBY'S MARKET PRICES

Type of Meat	Price per pound
Beef	\$4.25
Chicken	\$2.50
Sausage	\$3.25
Turkey	\$2.85

How much more does $1\frac{1}{4}$ pounds of beef cost than $1\frac{1}{4}$ pounds of turkey?

Show your work.

$$\begin{array}{r} \text{B } 4.25 \\ + 1.00 \\ \hline 5.25 \end{array} \qquad \begin{array}{r} \text{T } 2.85 \\ + .71 \\ \hline 3.56 \end{array}$$
$$\begin{array}{r} 4.25 \\ 5.25 \\ - 3.56 \\ \hline 1.75 \end{array}$$

Answer 5.175

Brad has \$10 to spend at Ruby's. He orders $\frac{1}{2}$ pound of sausage and $1\frac{1}{4}$ pounds of chicken. How much money will Brad have left after he pays for this order?

Show your work.

$$\begin{array}{r} \text{S } 1.63 \\ + 3.13 \\ \hline 4.76 \end{array} \qquad \begin{array}{r} \text{C } 2.50 \\ + .63 \\ \hline 3.13 \end{array}$$

Answer 4.76

Score Point 2 (out of 3 points)

This response demonstrates a partial understanding of the mathematical concepts in the task. The response follows a correct procedure to determine the difference in costs of meats. A correct procedure is provided when calculating the cost of ordering $\frac{1}{2}$ pound of sausage and $1\frac{1}{4}$ pounds of chicken; however, the difference between the original amount of money and the cost of two meats is not determined.

GUIDE PAPER 6

61

Ruby's Market sells smoked meats by the pound. The prices for several different meats are shown in the table.

RUBY'S MARKET PRICES

Type of Meat	Price per pound
Beef	\$4.25
Chicken	\$2.50
Sausage	\$3.25
Turkey	\$2.85

How much more does $1\frac{1}{4}$ pounds of beef cost than $1\frac{1}{4}$ pounds of turkey?

Show your work.

$$\begin{array}{r} 4.25 = 5.31 \\ -2.85 = 5.95 \end{array}$$

Answer is 0.64

Brad has \$10 to spend at Ruby's. He orders $\frac{1}{2}$ pound of sausage and $1\frac{1}{4}$ pounds of chicken. How much money will Brad have left after he pays for this order?

Show your work.

$$\begin{array}{r} 1.63 \\ +3.13 \\ \hline 4.76 \end{array}$$

Answer is 5.24

$$\begin{array}{r} 3.25 - 1.63 \\ -2.50 = 3.13 \\ \hline 4.76 \\ -5.24 \end{array}$$

Score Point 2 (out of 3 points)

This response demonstrates a partial understanding of the mathematical concepts in the task. The cost of ordering $1\frac{1}{4}$ pounds of beef is calculated correctly. An error is made when calculating the cost of $1\frac{1}{4}$ pounds of turkey, resulting in an incorrect answer for the difference in costs of two meats. A correct procedure is provided when calculating how much money is left after placing the order.

GUIDE PAPER 7

61

Ruby's Market sells smoked meats by the pound. The prices for several different meats are shown in the table.

RUBY'S MARKET PRICES

Type of Meat	Price per pound
Beef	\$4.25
Chicken	\$2.50
Sausage	\$3.25
Turkey	\$2.85

How much more does $1\frac{1}{4}$ pounds of beef cost than $1\frac{1}{4}$ pounds of turkey?

Show your work.

$$\begin{array}{r}
 \begin{array}{r}
 \text{Beef} \\
 + 4.25 \\
 \hline
 \end{array}
 \\
 \begin{array}{r}
 \text{Turkey} \\
 + 1.07 \\
 \hline
 \end{array}
 \\
 \begin{array}{r}
 \$ 5.32 \\
 \hline
 \end{array}
 \end{array}$$

$$\begin{array}{r}
 \begin{array}{r}
 \$ 5.32 \\
 - 2.85 \\
 \hline
 .71 \\
 \hline
 2.56
 \end{array}
 \\
 \begin{array}{r}
 \text{Turkey} \\
 - 2.85 \\
 \hline
 .71 \\
 \hline
 2.56
 \end{array}
 \end{array}$$

Answer \$ 1.76 more cost 1.76

Brad has \$10 to spend at Ruby's. He orders $\frac{1}{2}$ pound of sausage and $1\frac{1}{4}$ pounds of chicken. How much money will Brad have left after he pays for this order?

Show your work.

$$\begin{array}{r}
 \begin{array}{r}
 \text{CHICKEN} \\
 | 1\frac{1}{4} \\
 \hline
 \end{array}
 \\
 \begin{array}{r}
 \text{SAUSAGE} \\
 | \frac{1}{2} \text{ POUND} \\
 \hline
 \end{array}
 \end{array}$$

$$\begin{array}{r}
 3.25 \div 2 = 1.625 \\
 1.625 = 1.63
 \end{array}$$

Answer \$ _____

Score Point 1 (out of 3 points)

This response demonstrates a limited understanding of the mathematical concepts in the task. An error occurs when calculating the cost of $\frac{1}{4}$ pound of beef, resulting in an incorrect answer for the difference in costs of two meats. The cost of ordering $\frac{1}{2}$ pound of sausage is calculated correctly, however, the work is incomplete and the rest of the work is missing. The response addresses some elements of the task correctly and reflects a lack of essential understanding.

GUIDE PAPER 8

Additional

61

Ruby's Market sells smoked meats by the pound. The prices for several different meats are shown in the table.

RUBY'S MARKET PRICES

Type of Meat	Price per pound
Beef	\$4.25
Chicken	\$2.50
Sausage	\$3.25
Turkey	\$2.85

How much more does $1\frac{1}{2}$ pounds of beef cost than $1\frac{1}{4}$ pounds of turkey?

Show your work.

$$\begin{array}{r} 36 \text{¢} \\ - 2 \text{¢} \\ \hline 1.40 \end{array}$$

Answer S \$1.40

Brad has \$10 to spend at Ruby's. He orders $\frac{1}{2}$ pound of sausage and $1\frac{1}{4}$ pounds of chicken. How much money will Brad have left after he pays for this order?

Show your work.

$$\begin{array}{r} \$11.63 \\ - 4.76 \\ \hline \$5.87 \end{array} \quad \begin{array}{r} \$11.63 \\ + 3.13 \\ \hline \$14.76 \end{array} \quad \begin{array}{r} \$11.63 \\ - 4.76 \\ \hline \$6.87 \end{array}$$

Answer S \$5.34

Score Point 1 (out of 3 points)

This response demonstrates a limited understanding of the mathematical concepts in the task. The response only determines the difference in costs of 1 pound of meats. A correct procedure is used when calculating how much money is left after ordering $\frac{1}{2}$ pound of sausage and $1\frac{1}{4}$ pounds of chicken. The response addresses some elements of the task correctly and reflects a lack of essential understanding.

GUIDE PAPER 9

61

Ruby's Market sells smoked meats by the pound. The prices for several different meats are shown in the table.

RUBY'S MARKET PRICES

Type of Meat	Price per pound
Beef	\$4.25
Chicken	\$2.50
Sausage	\$3.25
Turkey	\$2.85

How much more does $1\frac{1}{4}$ pounds of beef cost than $1\frac{1}{4}$ pounds of turkey?

Show your work.

$$\frac{1}{1.25} = \frac{4.25}{x_1}$$

$$\frac{1}{1.25} = \frac{2.85}{x_2}$$

$$x_1 = 5.3125 \quad x_2 = 35.625$$

Answer 5 1.75

Brad has \$10 to spend at Ruby's. He orders $\frac{1}{2}$ pound of sausage and $1\frac{1}{4}$ pounds of chicken. How much money will Brad have left after he pays for this order?

Show your work.

Answer 5 _____

Score Point 1 (out of 3 points)

This response demonstrates a limited understanding of the mathematical concepts in the task. The response follows a correct procedure to determine the difference in the costs of meats. The work is incomplete and no work for the second question is provided. The response addresses some elements of the task correctly and reflects a lack of essential understanding.

GUIDE PAPER 10

61

Ruby's Market sells smoked meats by the pound. The prices for several different meats are shown in the table.

RUBY'S MARKET PRICES

Type of Meat	Price per pound
Beef	\$4.25
Chicken	\$2.50
Sausage	\$3.25
Turkey	\$2.85

How much more does $1\frac{1}{4}$ pounds of beef cost than $1\frac{1}{4}$ pounds of turkey?

Show your work.

$$\begin{array}{r} 4.25 \\ - 2.85 \\ \hline 1.40 \end{array}$$

Answer is \$1.40

Brad has \$10 to spend at Ruby's. He orders $\frac{1}{2}$ pound of sausage and $1\frac{1}{4}$ pounds of chicken. How much money will Brad have left after he pays for this order?

Show your work.

$$\begin{array}{r} \$1.63 \\ \text{sausage} \\ + 2.75 \\ \text{chicken} \\ \hline \$4.38 \end{array} \quad \begin{array}{r} \$10.00 \\ - \$4.38 \\ \hline \$5.62 \end{array}$$

Answer is \$5.62 left

Score Point 0 (out of 3 points)

This response is not sufficient to demonstrate even a limited understanding of the mathematical concepts in the task. The response only determines the difference in costs of 1 pound of meats. The answer for the cost of $\frac{1}{2}$ pound of sausage is correct; however no work to support the answer is provided. The cost of $1\frac{1}{4}$ pounds of chicken is incorrect. Although the rest of the work to determine the cost of two meats and the amount of money left is correct, the response does not provide sufficient work to demonstrate even a limited understanding of the material.

GUIDE PAPER 11

Additional

61

Ruby's Market sells smoked meats by the pound. The prices for several different meats are shown in the table.

RUBY'S MARKET PRICES

Type of Meat	Price per pound
Beef	\$4.25
Chicken	\$2.50
Sausage	\$3.25
Turkey	\$2.85

How much more does $1\frac{1}{4}$ pounds of beef cost than $1\frac{1}{4}$ pounds of turkey?

Show your work.

$$\begin{array}{r} 2.1410 \\ \underline{-} 2.75 \\ \hline 1.75 \end{array}$$

Answer is 1.75

Brad has \$10 to spend at Ruby's. He orders $\frac{1}{2}$ pound of sausage and $1\frac{1}{4}$ pounds of chicken. How much money will Brad have left after he pays for this order?

Show your work.

$$\begin{array}{r} 4.25 \\ + 1.75 \\ \hline 5.50 \end{array} \quad \begin{array}{r} \$10.00 \\ - \$4.50 \\ \hline \$5.50 \end{array}$$

Answer is 5.50

Score Point 0 (out of 3 points)

This response is not sufficient to demonstrate even a limited understanding of the mathematical concepts in the task. An incorrect procedure is used to determine the difference in the costs of meats. The cost of sausage and chicken is calculated incorrectly. Although the rest of the work to determine the amount of money left is correct, the response does not provide sufficient work to demonstrate even a limited understanding of the material.