

Name: _____



New York State *Testing Program*

2018 Mathematics Test Session 1

Grade **4**

May 1–3, 2018

Released Questions

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

1

Jean threw a softball a distance of 9 feet. Lee threw a softball 3 times as far as Jean. Which equation can be used to determine the distance, d , that Lee threw the ball?

A $d \times 3 = 9$

B $d + 3 = 9$

C $3 + 9 = d$

D $3 \times 9 = d$

2

Natasha and Evan are each writing a 5-page essay. Natasha completed $\frac{3}{5}$ of her essay in the morning and $\frac{2}{5}$ of her essay in the afternoon. Evan completed $\frac{4}{5}$ of his essay after school. How much more of the total essay did Natasha complete than Evan?

A $\frac{1}{5}$

B $\frac{2}{5}$

C $\frac{4}{5}$

D $\frac{9}{5}$

GO ON

3

A number, rounded to the nearest thousand, is 47,000. Which number could be the number that was rounded?

A 46,295

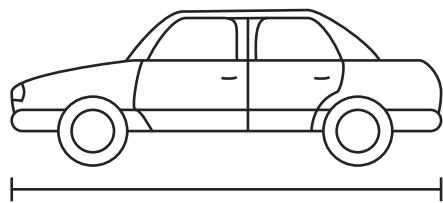
B 46,504

C 47,520

D 47,924

4

What is the length, in inches, of the toy car shown below?



A $2\frac{1}{4}$

B $2\frac{1}{2}$

C $3\frac{1}{4}$

D $3\frac{3}{4}$

GO ON

- 12** What is the measure, in degrees, of an angle that represents $\frac{50}{360}$ of a circle?

- A 50°
- B 90°
- C 310°
- D 360°

- 13** Ms. Larsen is buying 2 delivery vans for her business. The price of the first van is shown below.

\$16,257

The digit 2 in the price of the second van is 10 times the value of the digit 2 in the price of the first van. Which amount could be the price of the second van?

- A \$12,987
- B \$15,927
- C \$17,257
- D \$21,579

- 14** What is the rule for the pattern shown below?

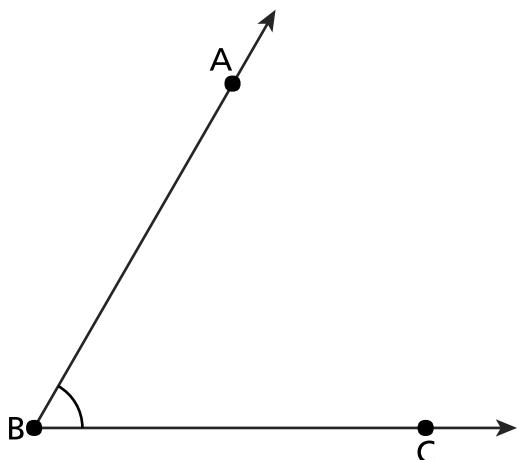
41, 38, 35, 32, 29, . . .

- A divide by 3
- B divide by 4
- C subtract 3
- D subtract 4

GO ON

17

What is the measure of angle ABC?



- A** 60°
- B** 70°
- C** 110°
- D** 120°

18

Which expression has the same value as $\frac{7}{12}$?

- A** $\frac{2}{12} + \frac{3}{12} + \frac{3}{12}$
- B** $\frac{7}{12} + \frac{7}{12} + \frac{7}{12}$
- C** $\frac{2}{12} + \frac{1}{12} + \frac{2}{12} + \frac{1}{12}$
- D** $\frac{2}{12} + \frac{1}{12} + \frac{2}{12} + \frac{2}{12}$

GO ON

23 What is the quotient of $1,248 \div 7$?

- A 177 remainder 9
- B 168 remainder 2
- C 178 remainder 2
- D 178 remainder 3

24 Which number sentence correctly compares two numbers?

- A forty-six thousand three hundred fifteen $< 46,350$
- B $29,073 = 20,000 + 9,000 + 700 + 3$
- C $10,000 + 6,000 + 400 >$ sixteen thousand four hundred ten
- D $86,502 = 80,000 + 6,000 + 500 + 20$

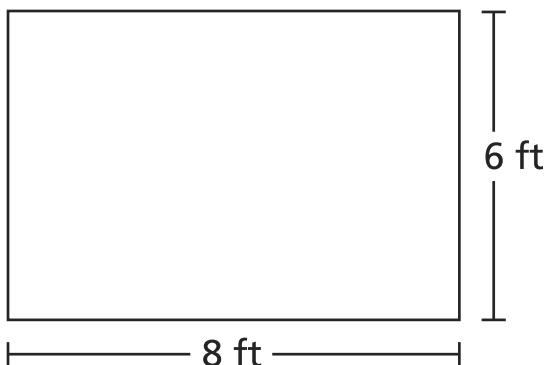
25 Which expression has the same value as $7 \times \frac{3}{4}$?

- A $21 \times \frac{3}{4}$
- B $21 \times \frac{3}{28}$
- C $21 \times \frac{1}{4}$
- D $21 \times \frac{1}{28}$

GO ON

27

Megan's art class painted two rectangular murals. The size of the first mural is shown below.



The second mural had the same area as the first mural but had a different perimeter. Which measures could be the side lengths of the second mural?

- A** 8 feet and 6 feet
- B** 5 feet and 9 feet
- C** 4 feet and 12 feet
- D** 4 feet and 10 feet

28

Jack picks 60 apples from an apple tree. He uses 12 of them to make applesauce. He places the remaining apples equally into 6 gift baskets. Which equation can be used to determine the number of apples, a , that Jack places into each gift basket?

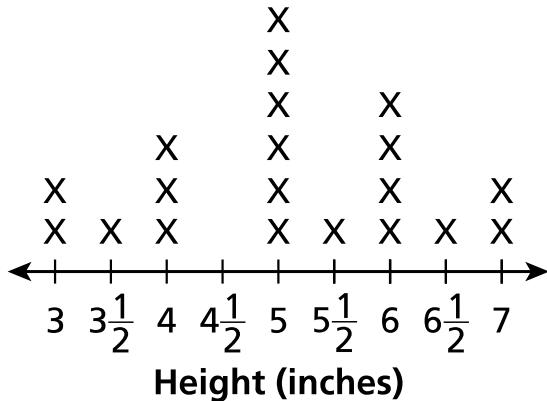
- A** $(60 \div 6) - 12 = a$
- B** $(60 - 12) \div 6 = a$
- C** $(60 - 6) - 12 = a$
- D** $(60 + 12) \div 6 = a$

GO ON

29

Once a week, students in a classroom measure the heights of the tomato plants they planted in the school garden. The line plot below shows the heights of the plants at the end of the second week.

PLANT HEIGHTS



Based on the line plot, how many plants have a height greater than $4\frac{1}{2}$ inches?

- A 0
- B 6
- C 14
- D 20

30

Which statement is true?

- A $\frac{4}{12} > \frac{5}{8}$ because $\frac{5}{8}$ is greater than $\frac{1}{2}$ and $\frac{4}{12}$ is closer to 1 than $\frac{1}{2}$.
- B $\frac{4}{12} < \frac{5}{8}$ because $\frac{4}{12}$ is less than $\frac{1}{2}$ and $\frac{5}{8}$ is greater than $\frac{1}{2}$.
- C $\frac{5}{8} > \frac{4}{12}$ because $\frac{4}{12}$ and $\frac{5}{8}$ are both closer to 1 than $\frac{1}{2}$.
- D $\frac{5}{8} < \frac{4}{12}$ because $\frac{5}{8}$ and $\frac{4}{12}$ are both less than $\frac{1}{2}$.

STOP

Session 2

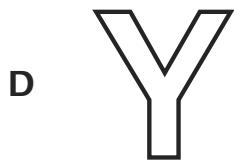
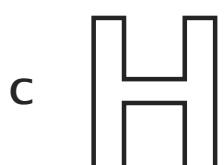


TIPS FOR TAKING THE TEST

Here are some suggestions to help you do your best:

- Read each question carefully and think about the answer before making your choice or writing your response.
- You have been provided with mathematics tools (a ruler and a protractor) to use during the test. It is up to you to decide when each tool will be helpful. You should use mathematics tools whenever you think they will help you to answer the question.
- Be sure to show your work when asked.

31 Which letter has the **greatest** number of lines of symmetry?



32 Which list shows all the factors of 36?

A 1, 2, 3, 4, 9, 12, 18, 36

B 0, 1, 2, 3, 4, 9, 12, 18, 36

C 1, 2, 3, 4, 6, 9, 12, 18, 36

D 0, 1, 2, 3, 4, 6, 9, 12, 18, 36

33 Which expression shows 125,206 written in expanded form?

A $100,000 + 2,000 + 5,000 + 200 + 6$

B $100,000 + 20,000 + 5,000 + 200 + 6$

C $100,000 + 20,000 + 50,000 + 200 + 6$

D $100,000 + 20,000 + 5,000 + 2,000 + 6$

GO ON

34

The table shows the height increases, in inches, of some girls in Gina's class from last month to this month.

HEIGHT INCREASES IN 1 MONTH

Name	Height Increase (inches)
Gina	$\frac{3}{8}$
Maxine	$\frac{2}{3}$
Shari	$\frac{2}{4}$
Vanessa	$\frac{3}{12}$

What girl had a height increase that was greater than $\frac{1}{2}$ inch?

- A Gina
- B Maxine
- C Shari
- D Vanessa

GO ON

35

Carl used some fabric to make a seat cover. Then he used 8 times as much fabric to make a tent. He used 24 yards of fabric to make the tent. Which equation can be used to determine the amount of fabric he used to make the seat cover?

A $24 = 8 \times \underline{\hspace{1cm}}$

B $24 = 8 + \underline{\hspace{1cm}}$

C $8 \times 24 = \underline{\hspace{1cm}}$

D $8 + 24 = \underline{\hspace{1cm}}$

36

Ms. Clark's class went to recess at 12:00 p.m., as shown below.



The minute hand had turned 90 degrees by the time recess ended. At what time did recess end?

A 12:15 p.m.

B 12:30 p.m.

C 12:45 p.m.

D 1:00 p.m.

GO ON

37

Andrew wrote the number 186,425 on the board. In which number is the value of the digit 6 exactly 10 times the value of the digit 6 in the number Andrew wrote?

A 681,452

B 462,017

C 246,412

D 125,655

38

Which number could be placed in the blank to make the equation true?

$$6 \times \frac{5}{6} = \underline{\quad ? \quad} \times \frac{1}{6}$$

A 5

B 11

C 30

D 36

GO ON

39

Which diagram below appears to show a pair of perpendicular lines?

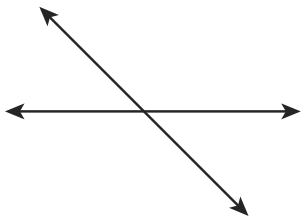


Diagram A

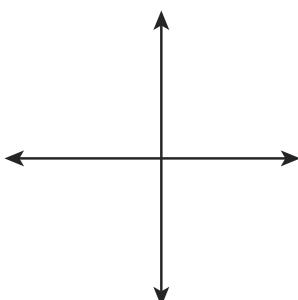


Diagram B

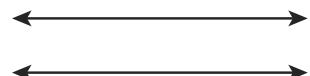


Diagram C

Explain your answer.

GO ON

40

The workers at Cameron’s Flower Shop are putting 1,323 flowers into vases for a party. Each vase must hold exactly 8 flowers. What is the total number of vases the workers can fill completely?

Show your work.

Answer _____ vases

GO ON

- 41** Samantha walks a total of $\frac{2}{3}$ mile to get to and from school each day. Write an expression that can be used to find the total number of miles that Samantha walks to and from school over 5 days. Then evaluate the expression.

Expression _____

Show your work.

Answer _____ miles walked

GO ON

42

Cindy recycled 54 pounds of paper. She recycled 9 times as many pounds of paper as Monica. Write an equation that can be used to find m , the number of pounds of paper Monica recycled. Then solve the equation to find the number of pounds of paper Monica recycled.

Show your work.

Answer $m = \underline{\hspace{2cm}}$ pounds of paper

GO ON

- 43** Of the animals at a pet show, $\frac{3}{8}$ were cats and $\frac{4}{8}$ were dogs. The rest of the animals were rabbits. What fraction of the animals at the pet show were rabbits?

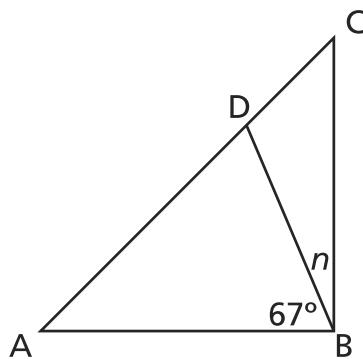
Show your work.

Answer _____

GO ON

44

Right triangle ABC is shown below.



Write an equation that can be used to determine the angle measure, in degrees, of angle DBC. Let n represent the measure of angle DBC. Then determine the measure of n .

Show your work.

Answer $n = \underline{\hspace{2cm}}$ degrees

GO ON

45

A teacher buys 8 packs of orange erasers and 6 packs of blue erasers for his classroom. There are 24 orange erasers in a pack and 28 blue erasers in a pack. What is the total number of erasers the teacher buys for his classroom?

Show your work.

Answer _____ erasers

STOP

THE STATE EDUCATION DEPARTMENT
THE UNIVERSITY OF THE STATE OF NEW YORK / ALBANY, NY 12234
2018 Mathematics Tests Map to the Standards
Grade 4 Released Questions on EngageNY

Question	Type	Key	Points	Standard	Cluster	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)
Session 1								
1	Multiple Choice	D	1	CCSS.Math.Content.4.OA.A.1	Operations and Algebraic Thinking	0.87		
2	Multiple Choice	A	1	CCSS.Math.Content.4.NF.B.3d	Number and Operations—Fractions	0.78		
3	Multiple Choice	B	1	CCSS.Math.Content.4.NBT.A.3	Number and Operations in Base Ten	0.73		
4	Multiple Choice	A	1	CCSS.Math.Content.3.MD.B.4	Measurement and Data	0.54		
12	Multiple Choice	A	1	CCSS.Math.Content.4.MD.C.5a	Measurement and Data	0.55		
13	Multiple Choice	A	1	CCSS.Math.Content.4.NBT.A.1	Number and Operations in Base Ten	0.37		
14	Multiple Choice	C	1	CCSS.Math.Content.4.OA.C.5	Operations and Algebraic Thinking	0.81		
17	Multiple Choice	A	1	CCSS.Math.Content.4.MD.C.6	Measurement and Data	0.69		
18	Multiple Choice	D	1	CCSS.Math.Content.4.NF.B.3b	Number and Operations—Fractions	0.90		
23	Multiple Choice	C	1	CCSS.Math.Content.4.NBT.B.6	Number and Operations in Base Ten	0.62		
24	Multiple Choice	A	1	CCSS.Math.Content.4.NBT.A.2	Number and Operations in Base Ten	0.68		
25	Multiple Choice	C	1	CCSS.Math.Content.4.NF.B.4a	Number and Operations—Fractions	0.57		
27	Multiple Choice	C	1	CCSS.Math.Content.3.MD.D.8	Measurement and Data	0.52		
28	Multiple Choice	B	1	CCSS.Math.Content.4.OA.A.3	Operations and Algebraic Thinking	0.69		
29	Multiple Choice	C	1	CCSS.Math.Content.4.MD.B.4	Measurement and Data	0.52		
30	Multiple Choice	B	1	CCSS.Math.Content.4.NF.A.2	Number and Operations—Fractions	0.61		

Question	Type	Key	Points	Standard	Cluster	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)
Session 2								
31	Multiple Choice	C	1	CCSS.Math.Content.4.G.A.3	Geometry	0.81		
32	Multiple Choice	C	1	CCSS.Math.Content.4.OA.B.4	Operations and Algebraic Thinking	0.57		
33	Multiple Choice	B	1	CCSS.Math.Content.4.NBT.A.2	Number and Operations in Base Ten	0.87		
34	Multiple Choice	B	1	CCSS.Math.Content.4.NF.A.2	Number and Operations—Fractions	0.65		
35	Multiple Choice	A	1	CCSS.Math.Content.4.OA.A.1	Operations and Algebraic Thinking	0.52		
36	Multiple Choice	A	1	CCSS.Math.Content.4.MD.C.5b	Measurement and Data	0.65		
37	Multiple Choice	B	1	CCSS.Math.Content.4.NBT.A.1	Number and Operations in Base Ten	0.52		
38	Multiple Choice	C	1	CCSS.Math.Content.4.NF.B.4b	Number and Operations—Fractions	0.62		
39	Constructed Response		2	CCSS.Math.Content.4.G.A.1	Geometry		1.18	0.59
40	Constructed Response		2	CCSS.Math.Content.4.NBT.B.6	Number and Operations in Base Ten		1.02	0.51
41	Constructed Response		2	CCSS.Math.Content.4.NF.B.4c	Number and Operations—Fractions		0.96	0.48
42	Constructed Response		2	CCSS.Math.Content.4.OA.A.2	Operations and Algebraic Thinking		0.88	0.44
43	Constructed Response		2	CCSS.Math.Content.4.NF.B.3d	Number and Operations—Fractions		1.32	0.66
44	Constructed Response		2	CCSS.Math.Content.4.MD.C.7	Measurement and Data		0.7	0.35
45	Constructed Response		3	CCSS.Math.Content.4.NBT.B.5	Number and Operations in Base Ten		1.8	0.60

*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	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. 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 and the demonstration of a thorough understanding
1 Point	A one-point response demonstrates only a partial understanding of the mathematical concepts and/or procedures in the task. This response <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*	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).

3-Point Holistic Rubric

3 Point	<p>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.</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(s) and the demonstration of a thorough understanding
2 Point	<p>A two-point response demonstrates a partial understanding of the mathematical concepts and/or procedures in the task.</p> <p>This response</p> <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	<p>A one-point response demonstrates only a limited understanding of the mathematical concepts and/or procedures in the task.</p> <p>This response</p> <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*	<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)

2018 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 shows the work in other than a designated “Show your work” or “Explain” area, that work should still be scored.
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 space, the student should still receive full credit.
3. If students are directed to show work, a correct answer with **no** work shown receives **no** credit.
4. 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.
5. If the student provides one legible response (and one response only), the rater should score the response, even if it has been crossed out.
6. If the student has written more than one response but has crossed some out, the rater should score only the response that has **not** been crossed out.
7. If the student provides more than one response, but does not indicate which response is to be considered the correct response and none has been crossed out, the student shall not receive full credit.
8. If the student makes a conceptual error (that is an error in understanding rather than an arithmetic or computational error), that student shall not receive more than 50% credit.
9. Trial-and-error responses are **not** subject to Scoring Policy #6 above, since crossing out is part of the trial-and-error process.
10. If a response shows repeated occurrences of the same conceptual error within a question, the conceptual error should **not** be considered more than once in gauging the demonstrated level of understanding.
11. In questions requiring number sentences, the number sentences must be written horizontally.
12. When measuring angles with a protractor, there is a +/- 5 degrees deviation allowed of the true measure.
13. 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

39

Which diagram below appears to show a pair of perpendicular lines?

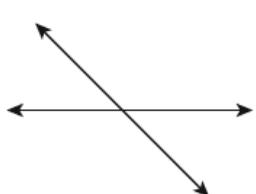


Diagram A

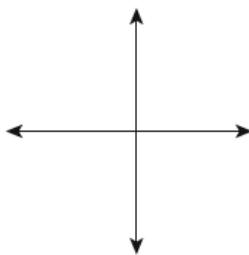


Diagram B

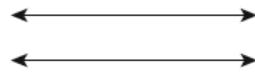


Diagram C

Explain your answer.

Diagram B, because the two lines appear to cross at a 90 degree angle.

Diagram C has two parallel lines.

In diagram A, the lines create acute and obtuse angles.

Or any other valid explanation

GUIDE PAPER 1

Additional

39

Which diagram below appears to show a pair of perpendicular lines?

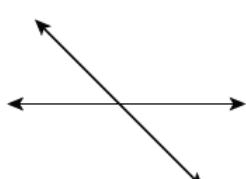


Diagram A

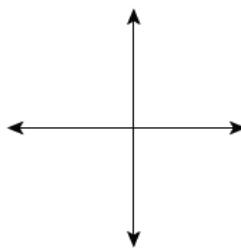


Diagram B



Diagram C

Explain your answer.

diagram B shows perpendicular lines. I know this because diagram B forms right angles.

Score Point 2 (out of 2 points)

This response demonstrates a thorough understanding of the mathematical concepts in the task. The answer and explanation are correct and complete.

GUIDE PAPER 2

39

Which diagram below appears to show a pair of perpendicular lines?

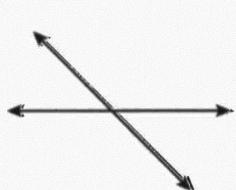


Diagram A

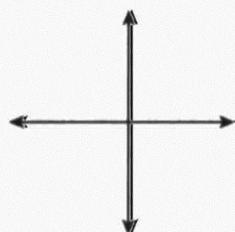


Diagram B

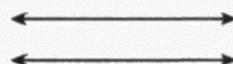


Diagram C

Explain your answer.

Diagram B shows ~~not~~ perpendicular lines. I know this because diagram B lines meet making 90° angle.

Score Point 2 (out of 2 points)

This response demonstrates a thorough understanding of the mathematical concepts in the task. The answer and explanation are correct and complete.

GUIDE PAPER 3

39

Which diagram below appears to show a pair of perpendicular lines?

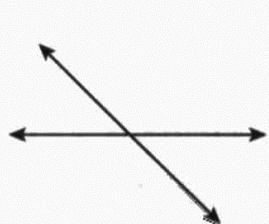


Diagram A

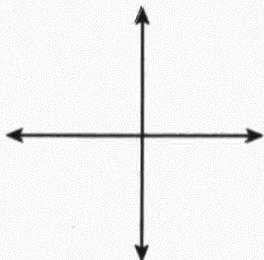


Diagram B

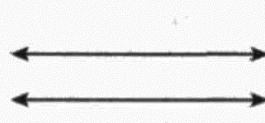


Diagram C

Explain your answer.

Diagram B because perpendicular line
have 4 right angles and one line go
up and the other one go across.

Score Point 2 (out of 2 points)

This response demonstrates a thorough understanding of the mathematical concepts in the task. The answer and explanation are correct and complete.

GUIDE PAPER 4

39

Which diagram below appears to show a pair of perpendicular lines?

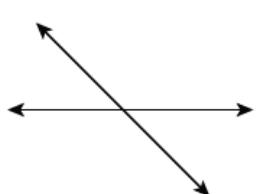


Diagram A

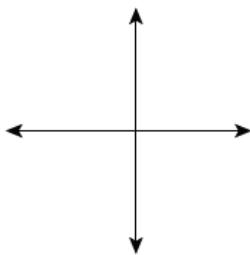


Diagram B

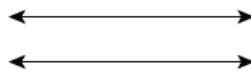


Diagram C

Explain your answer.

Diagram A shows intersecting lines. Diagram B shows perpendicular lines. Diagram C shows parallel lines. So the correct answer is diagram B, perpendicular lines.

Score Point 1 (out of 2 points)

This response demonstrates only a partial understanding of the mathematical concepts in the task. The correct choice is made but the explanation is incomplete and does not reference right angles. The response addresses only some elements of the task correctly.

GUIDE PAPER 5

39

Which diagram below appears to show a pair of perpendicular lines?

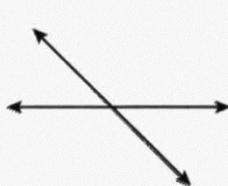


Diagram A

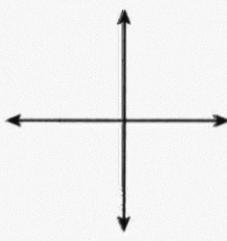


Diagram B

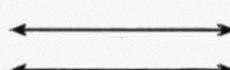


Diagram C

Explain your answer.

Diagram B because the lines
are straight.

Score Point 1 (out of 2 points)

This response demonstrates only a partial understanding of the mathematical concepts in the task. The correct choice is made but the explanation does not reference right angles. The response addresses only some elements of the task correctly.

GUIDE PAPER 6

39

Which diagram below appears to show a pair of perpendicular lines?

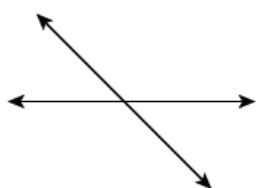


Diagram A

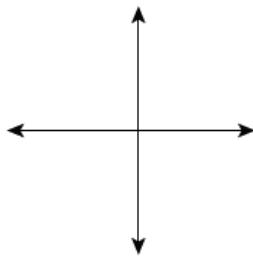


Diagram B

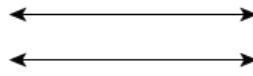


Diagram C

Explain your answer.

diagram b beacuse it has a square shape

Score Point 1 (out of 2 points)

This response demonstrates only a partial understanding of the mathematical concepts in the task. The correct choice is made but the explanation “*beacuse it has a square shape*” is not specific enough to refer to right angles. The response addresses only some elements of the task correctly.

GUIDE PAPER 7

39

Which diagram below appears to show a pair of perpendicular lines?

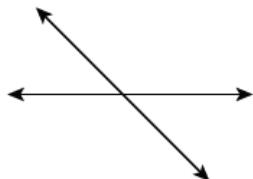


Diagram A

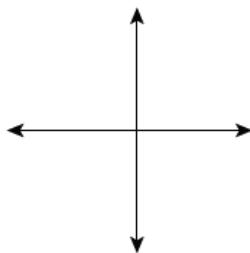


Diagram B

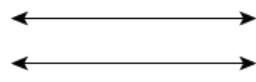


Diagram C

Explain your answer.

Diagram C is perpendicular because lines that are perpendicular never touch.

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 shows confusion between perpendicular and parallel, leading to an incorrect answer.

GUIDE PAPER 8

Additional

39

Which diagram below appears to show a pair of perpendicular lines?

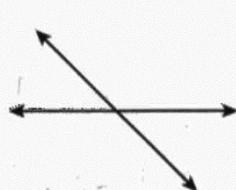


Diagram A

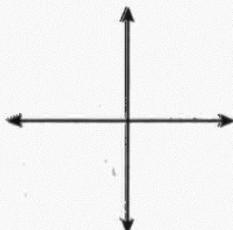


Diagram B

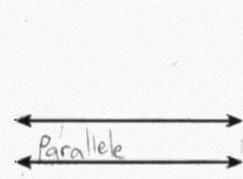


Diagram C

Explain your answer.

I think it is diagram A. Because perpendicular is two intersecting lines that are diagonal, & they make an acute & obtuse.

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 choice is supported with an incorrect explanation.

EXEMPLARY RESPONSE

40

The workers at Cameron's Flower Shop are putting 1,323 flowers into vases for a party. Each vase must hold exactly 8 flowers. What is the total number of vases the workers can fill completely?

Show your work.

$$1323 \div 8 = 165 \text{ R}3$$

The total number of vases that can be filled completely with 8 flowers each is 165.

Or any other valid process

Answer 165 vases

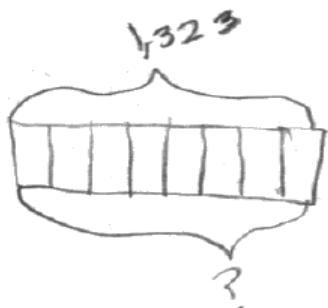
GUIDE PAPER 1

Additional

40

The workers at Cameron's Flower Shop are putting 1,323 flowers into vases for a party. Each vase must hold exactly 8 flowers. What is the total number of vases the workers can fill completely?

Show your work.



$$\begin{array}{r} 0165 \text{ R} \\ 8 \overline{) 1323} \\ -8 \\ \hline 13 \\ -8 \\ \hline 52 \\ -48 \\ \hline 04 \\ -40 \\ \hline 3 \end{array}$$

$$\begin{array}{r} ⑤ \\ ① 165 \\ \times 8 \\ \hline 1320 \\ + 3 \\ \hline 1323 \end{array}$$

The total number of roses the workers can fill completely is 165 vases.

Answer 165 vases

Score Point 2 (out of 2 points)

This response demonstrates a thorough understanding of the mathematical concepts in the task. The number of vases is correctly determined through sound mathematical processes.

GUIDE PAPER 2

40

The workers at Cameron's Flower Shop are putting 1,323 flowers into vases for a party. Each vase must hold exactly 8 flowers. What is the total number of vases the workers can fill completely?

Show your work.

$$\begin{array}{r} \underline{165} \text{ R } 3 \\ 8 \overline{) 1,323} \\ 800 \\ \hline 423 \\ 480 \\ \hline 43 \\ 40 \\ \hline 3 \end{array}$$

Answer 165 vases

Score Point 2 (out of 2 points)

This response demonstrates a thorough understanding of the mathematical concepts in the task. The number of vases is correctly determined through sound mathematical processes.

GUIDE PAPER 3

40

The workers at Cameron's Flower Shop are putting 1,323 flowers into vases for a party. Each vase must hold exactly 8 flowers. What is the total number of vases the workers can fill completely?

Show your work.

CHECK
 $\begin{array}{r} 165 \\ \times 8 \\ \hline 1320 \\ +3 \\ \hline 1323 \end{array}$ remainder

$$\begin{array}{r} 165 \\ 8 \overline{) 1323} \\ -8 \\ \hline 52 \\ -48 \\ \hline 4 \\ -4 \\ \hline 0 \\ -3 \\ \hline 3 \end{array}$$

Answer 165 vases

Score Point 2 (out of 2 points)

This response demonstrates a thorough understanding of the mathematical concepts in the task. The number of vases is correctly determined through sound mathematical processes.

GUIDE PAPER 4

40

The workers at Cameron's Flower Shop are putting 1,323 flowers into vases for a party. Each vase must hold exactly 8 flowers. What is the total number of vases the workers can fill completely?

Show your work.

$$\begin{array}{r} \overset{x}{1} \overset{6}{6} \overset{5}{5} \overset{r}{3} \\ 8) \underline{1,323} \\ -8 \\ \hline 4 \overset{\downarrow}{3} 2 \\ -48 \\ \hline 43 \\ -40 \\ \hline 3 \end{array}$$

Answer 166 vases

Score Point 1 (out of 2 points)

This response demonstrates only a partial understanding of the mathematical concepts in the task. The division is performed correctly and the remainder is clearly identified, but an incorrect answer is provided: the last vase will be incompletely filled with only three flowers. The response addresses only some elements of the task correctly.

GUIDE PAPER 5

40

The workers at Cameron's Flower Shop are putting 1,323 flowers into vases for a party. Each vase must hold exactly 8 flowers. What is the total number of vases the workers can fill completely?

Show your work.

Handwritten work showing division and addition:

159 ~~152~~ ~~7~~ ~~152~~
8 | 1323 152
 - 8
 52
 - 48
 43
 - 40
 3
 - 16
 17

152
+ 7

159

Answer 159 vases

Score Point 1 (out of 2 points)

This response demonstrates only a partial understanding of the mathematical concepts in the task. A sound mathematical process is used to determine the number of vases but a calculation error results in an incorrect answer. The response addresses only some elements of the task correctly.

GUIDE PAPER 6

40

The workers at Cameron's Flower Shop are putting 1,323 flowers into vases for a party. Each vase must hold exactly 8 flowers. What is the total number of vases the workers can fill completely?

Show your work.

$$\begin{array}{r} 15 \\ \overline{)1323} \\ -120 \\ \hline 123 \\ -120 \\ \hline 003 \end{array}$$
$$\begin{array}{r} 20 \\ \times 8 \\ \hline 160 \end{array}$$
$$\begin{array}{r} 15 \\ \times 8 \\ \hline 120 \end{array}$$
$$\begin{array}{r} 4 \\ 156 \\ \times 8 \\ \hline 1248 \end{array}$$
$$\begin{array}{r} 4 \\ 165 \\ \times 8 \\ \hline 12,80 \end{array}$$
$$\begin{array}{r} 5 \\ 167 \\ \times 8 \\ \hline 1326 \\ 54 \\ 165 \\ \times 8 \\ \hline 1320R3 \end{array}$$

Answer 165 R3 vases

Score Point 1 (out of 2 points)

This response demonstrates only a partial understanding of the mathematical concepts in the task. Trial-and-error is used to determine the number of completely filled vases but errors in the work show an incomplete understanding of the process and the answer is not truncated to remove the remainder.

GUIDE PAPER 7

40

The workers at Cameron's Flower Shop are putting 1,323 flowers into vases for a party. Each vase must hold exactly 8 flowers. What is the total number of vases the workers can fill completely?

Please
Show your work.

A handwritten division problem is shown in a rectangular frame. The dividend is 1,323, the divisor is 8, and the quotient is 165. The calculation is set up as follows:

$$\begin{array}{r} 165 \\ 8 \overline{)1,323} \\ -8 \\ \hline 52 \\ -48 \\ \hline 43 \\ -40 \\ \hline 3 \end{array}$$

Answer 1,315 vases

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 use of subtraction instead of division shows no understanding of the task.

GUIDE PAPER 8

Additional

40

The workers at Cameron's Flower Shop are putting 1,323 flowers into vases for a party. Each vase must hold exactly 8 flowers. What is the total number of vases the workers can fill completely?

Show your work.

$$\begin{array}{r} 1,323 \\ \times 8 \\ \hline 10,584 \end{array}$$

Answer 10,584 vases

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 use of multiplication instead of division shows no understanding of the task.

EXEMPLARY RESPONSE

41

Samantha walks a total of $\frac{2}{3}$ mile to get to and from school each day. Write an expression that can be used to find the total number of miles that Samantha walks to and from school over 5 days. Then evaluate the expression.

Expression $\frac{2}{3} \times 5$

Show your work.

Miles walked over 5 days:

$$\frac{2}{3} \times 5$$

Total number of miles walked over

5 days is:

$$\frac{2}{3} \times 5 = \frac{10}{3} \text{ miles or } 3\frac{1}{3} \text{ miles}$$

Or any other valid process

Answer $\frac{10}{3}$ or $3\frac{1}{3}$ miles walked

GUIDE PAPER 1

Additional

41

Samantha walks a total of $\frac{2}{3}$ mile to get to and from school each day. Write an expression that can be used to find the total number of miles that Samantha walks to and from school over 5 days. Then evaluate the expression.

Expression $\frac{2}{3} \times 5$

Show your work.

(1)

$$\frac{2}{3} \times 5 =$$

(2)

$$\frac{2}{3} \times \frac{5}{1} \leftarrow \text{Add the one}$$

$$(3) \frac{2}{3} \times \frac{5}{1} = \frac{10}{3} \text{ multiply}$$

Answer $\frac{10}{3}$ miles walked

Score Point 2 (out of 2 points)

This response demonstrates a thorough understanding of the mathematical concepts in the task. A correct expression is written and the number of miles walked is correctly determined using mathematically sound procedures.

GUIDE PAPER 2

41

Samantha walks a total of $\frac{2}{3}$ mile to get to and from school each day. Write an expression that can be used to find the total number of miles that Samantha walks to and from school over 5 days. Then evaluate the expression.

Expression $\underline{\frac{2}{3} + \frac{2}{3} + \frac{2}{3} + \frac{2}{3} + \frac{2}{3}}$

Show your work.

$$\frac{2}{3} + \frac{2}{3} = 1\frac{1}{3} \quad \frac{2}{3} + \frac{2}{3} + \frac{2}{3} = 2$$

$$\begin{array}{r} 1\frac{1}{3} \\ + 2 \\ \hline 3\frac{1}{3} \end{array}$$

Answer $3\frac{1}{3}$ miles walked

Score Point 2 (out of 2 points)

This response demonstrates a thorough understanding of the mathematical concepts in the task. A correct expression is written and the number of miles walked is correctly determined using mathematically sound procedures.

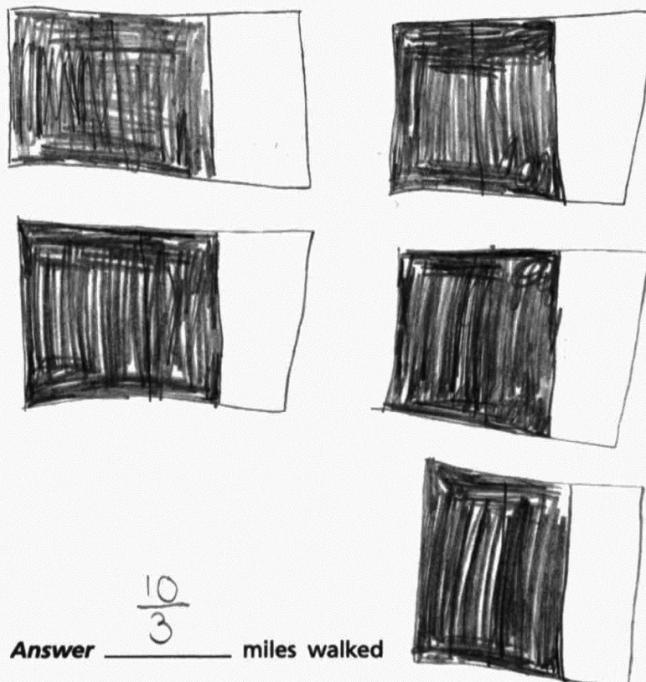
GUIDE PAPER 3

41

Samantha walks a total of $\frac{2}{3}$ mile to get to and from school each day. Write an expression that can be used to find the total number of miles that Samantha walks to and from school over 5 days. Then evaluate the expression.

Expression $5 \times \frac{2}{3}$

Show your work.



Answer $\frac{10}{3}$ miles walked

Score Point 2 (out of 2 points)

This response demonstrates a thorough understanding of the mathematical concepts in the task. A correct expression is written and the number of miles walked is correctly determined using mathematically sound procedures.

GUIDE PAPER 4

41

Samantha walks a total of $\frac{2}{3}$ mile to get to and from school each day. Write an expression that can be used to find the total number of miles that Samantha walks to and from school over 5 days. Then evaluate the expression.

Expression

Using multiplication

Show your work.

$$\overbrace{5}^1 \times \frac{2}{3} = \frac{10}{3} = 3\frac{1}{3}$$

$$3\frac{1}{3}$$

Answer $3\frac{1}{3}$ miles walked

Score Point 1 (out of 2 points)

This response demonstrates only a partial understanding of the mathematical concepts in the task. The number of miles walked is correctly determined using mathematically sound procedures, but no expression is written. The response addresses only some elements of the task correctly.

GUIDE PAPER 5

41

Samantha walks a total of $\frac{2}{3}$ mile to get to and from school each day. Write an expression that can be used to find the total number of miles that Samantha walks to and from school over 5 days. Then evaluate the expression.

Expression $\frac{2}{3} \times 5 = ?$

Show your work.

$$\frac{2}{3} + \frac{2}{3} = \frac{4}{3} = 1\frac{1}{3}$$

$$\frac{4}{3} \times 1 = \frac{4}{3} = 1\frac{1}{3}$$

Samantha walks $6\frac{2}{3}$ miles to and from school
in 5 days

Answer $6\frac{2}{3}$ miles walked

Score Point 1 (out of 2 points)

This response demonstrates only a partial understanding of the mathematical concepts in the task. The response uses a correct process but incorrectly doubles the distance walked and multiplies $\frac{4}{3} \times \frac{5}{1}$. Additionally, the expression is incorrect. The response addresses only some elements of the task correctly.

GUIDE PAPER 6

41

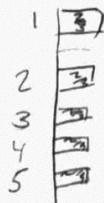
Samantha walks a total of $\frac{2}{3}$ mile to get to and from school each day. Write an expression that can be used to find the total number of miles that Samantha walks to and from school over 5 days. Then evaluate the expression.

Expression $5 \times \frac{2}{3}$

Show your work.



$$\frac{2}{3} \times 5 = \frac{10}{15}$$



$$5 \times \frac{2}{3} = \frac{10}{15}$$

$$\frac{2}{3} + \frac{2}{3} + \frac{2}{3} + \frac{2}{3} + \frac{2}{3} = \frac{10}{15}$$

Answer $\frac{10}{15}$ miles walked

Score Point 1 (out of 2 points)

This response demonstrates only a partial understanding of the mathematical concepts in the task. A correct expression is written, but it is evaluated incorrectly. The response addresses only some elements of the task correctly.

GUIDE PAPER 7

41

Samantha walks a total of $\frac{2}{3}$ mile to get to and from school each day. Write an expression that can be used to find the total number of miles that Samantha walks to and from school over 5 days. Then evaluate the expression.

Expression $\frac{2}{3} + \frac{5}{1} =$

Show your work.

$$\frac{2}{3} + \frac{5}{1} = \frac{7}{4}$$

$$\begin{array}{r} 7 \\ 4 \overline{)17} \\ -4 \\ \hline 3 \end{array}$$

$$1+1=2$$

Answer 2 miles walked

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 expression is incorrect and the work is incorrect and irrelevant.

GUIDE PAPER 8

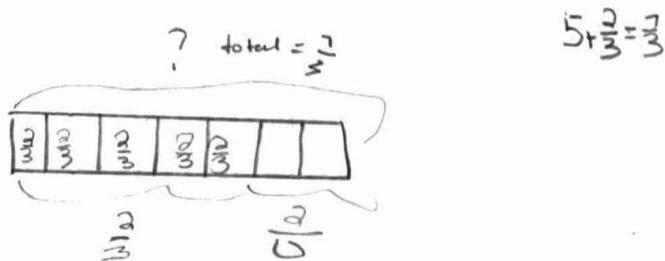
Additional

41

Samantha walks a total of $\frac{2}{3}$ mile to get to and from school each day. Write an expression that can be used to find the total number of miles that Samantha walks to and from school over 5 days. Then evaluate the expression.

Expression $\frac{7}{3}$

Show your work.



Answer $\frac{7}{3}$ miles walked

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 expression is incorrect and the work is incorrect and irrelevant.

EXEMPLARY RESPONSE

42

Cindy recycled 54 pounds of paper. She recycled 9 times as many pounds of paper as Monica. Write an equation that can be used to find m , the number of pounds of paper Monica recycled. Then solve the equation to find the number of pounds of paper Monica recycled.

Show your work.

$$54 = 9 \times m$$

$$m = 54 \div 9$$

$$m = 6$$

Or any other valid process

Answer $m = \underline{\hspace{2cm}6}$ pounds of paper

GUIDE PAPER 1

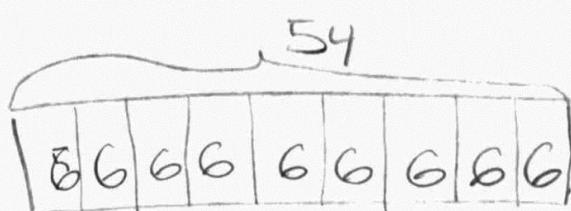
Additional

42

Cindy recycled 54 pounds of paper. She recycled 9 times as many pounds of paper as Monica. Write an equation that can be used to find m , the number of pounds of paper Monica recycled. Then solve the equation to find the number of pounds of paper Monica recycled.

Show your work.

$$m \times 9 = 54 \text{ pounds}$$



$$m = 6$$

$$6 \times 9 = 54 \text{ pounds}$$

$$54 \div 9 = 6$$

Answer $m = \underline{6}$ pounds of paper

Score Point 2 (out of 2 points)

This response demonstrates a thorough understanding of the mathematical concepts in the task. The amount of paper recycled by Monica is correctly determined using a correct equation.

GUIDE PAPER 2

42

Cindy recycled 54 pounds of paper. She recycled 9 times as many pounds of paper as Monica. Write an equation that can be used to find m , the number of pounds of paper Monica recycled. Then solve the equation to find the number of pounds of paper Monica recycled.

Show your work.

$$54 \div 9 = m$$

$$54 \div 9 = 6 \text{ lbs}$$

Answer $m = 6$ pounds of paper

Score Point 2 (out of 2 points)

This response demonstrates a thorough understanding of the mathematical concepts in the task. The amount of paper recycled by Monica is correctly determined using a correct equation.

GUIDE PAPER 3

42

Cindy recycled 54 pounds of paper. She recycled 9 times as many pounds of paper as Monica. Write an equation that can be used to find m , the number of pounds of paper Monica recycled. Then solve the equation to find the number of pounds of paper Monica recycled.

Show your work.

$$54 \div 9 = m$$

Answer $m = \underline{\hspace{2cm}}^6$ pounds of paper

Score Point 2 (out of 2 points)

This response demonstrates a thorough understanding of the mathematical concepts in the task. The amount of paper recycled by Monica is correctly determined using a correct equation.

GUIDE PAPER 4

42

Cindy recycled 54 pounds of paper. She ~~recycled~~ 9 times as many pounds of paper as Monica. Write an equation that can be used to find m , the number of pounds of paper Monica recycled. Then solve the equation to find the number of pounds of paper Monica recycled.

Show your work.

A handwritten diagram showing a division problem. A horizontal bar labeled "m = 6 pounds of paper" is divided by a vertical line labeled "9". Below the bar is the number "54".

Answer $m = \underline{\hspace{2cm}} 6$ pounds of paper

Score Point 1 (out of 2 points)

This response demonstrates only a partial understanding of the mathematical concepts in the task. The amount of paper recycled by Monica is correctly determined, but no equation is written. Per Scoring Policy #11, number sentences must be written horizontally. The response addresses only some elements of the task correctly.

GUIDE PAPER 5

42

Cindy recycled 54 pounds of paper. She recycled 9 times as many pounds of paper as Monica. Write an equation that can be used to find m , the number of pounds of paper Monica recycled. Then solve the equation to find the number of pounds of paper Monica recycled.

Show your work.

$$\begin{array}{r} 54 \\ - 9 \\ \hline 45 \end{array}$$

equation $54 - 9 = m$

Answer $m = \underline{\hspace{2cm}} 45$ pounds of paper

Score Point 1 (out of 2 points)

This response demonstrates only a partial understanding of the mathematical concepts in the task. An incorrect equation is provided, but the equation is solved correctly. The response addresses only some elements of the task correctly.

GUIDE PAPER 6

42

Cindy recycled 54 pounds of paper. She recycled 9 times as many pounds of paper as Monica. Write an equation that can be used to find m , the number of pounds of paper Monica recycled. Then solve the equation to find the number of pounds of paper Monica recycled.

Show your work.

$$\begin{array}{r} 54 \\ \div 9 \\ \hline 6 \end{array}$$

Answer $m = \underline{\hspace{2cm}} 6 \underline{\hspace{2cm}}$ pounds of paper

Score Point 1 (out of 2 points)

This response demonstrates only a partial understanding of the mathematical concepts in the task. No equation is written, but the correct answer is calculated with a correct process. The response addresses only some elements of the task correctly.

GUIDE PAPER 7

42

Cindy recycled 54 pounds of paper. She recycled 9 times as many pounds of paper as Monica. Write an equation that can be used to find m , the number of pounds of paper Monica recycled. Then solve the equation to find the number of pounds of paper Monica recycled.

Show your work.

$$54 \times 9 = M$$
$$\begin{array}{r} 54 \\ \times 9 \\ \hline 576 \end{array}$$

Answer $m = \underline{576}$ pounds of paper

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 equation is solved incorrectly.

GUIDE PAPER 8

Additional

42

Cindy recycled 54 pounds of paper. She recycled 9 times as many pounds of paper as Monica. Write an equation that can be used to find m , the number of pounds of paper Monica recycled. Then solve the equation to find the number of pounds of paper Monica recycled.

Show your work.

$$\begin{array}{r} 3 \\ \times 54 \\ \hline 186 \end{array}$$

Answer $m = \underline{\hspace{2cm}}^{486}$ pounds of paper

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. No equation is written and the answer is calculated using an incorrect procedure.

EXEMPLARY RESPONSE

43

Of the animals at a pet show, $\frac{3}{8}$ were cats and $\frac{4}{8}$ were dogs. The rest of the animals were rabbits. What fraction of the animals at the pet show were rabbits?

Show your work.

Total fraction of cats and dogs at the pet show:

$$\frac{3}{8} + \frac{4}{8} = \frac{7}{8}$$

Fraction of rabbits at the pet show:

$$\frac{8}{8} - \frac{7}{8} = \frac{1}{8}$$

$\frac{1}{8}$ of the animals at the pet show are rabbits.

Or any other valid process

Answer _____ $\frac{1}{8}$

GUIDE PAPER 1

Additional

43

Of the animals at a pet show, $\frac{3}{8}$ were cats and $\frac{4}{8}$ were dogs. The rest of the animals were rabbits. What fraction of the animals at the pet show were rabbits?

Show your work.

$$\frac{3}{8} + \frac{4}{8} = \frac{7}{8}$$

$$\frac{8}{8} - \frac{7}{8} = \frac{1}{8}$$

Answer $\frac{1}{8}$

Score Point 2 (out of 2 points)

This response demonstrates a thorough understanding of the mathematical concepts in the task. The correct fraction of rabbits at the pet show is determined using mathematically sound processes.

GUIDE PAPER 2

43

Of the animals at a pet show, $\frac{3}{8}$ were cats and $\frac{4}{8}$ were dogs. The rest of the animals were rabbits. What fraction of the animals at the pet show were rabbits?

Show your work.

$$\frac{3}{4} + \frac{4}{8} = \frac{7}{8} \text{ so}$$

$\frac{1}{8}$ of the animals
were rabbits.

Answer $\frac{1}{8}$

Score Point 2 (out of 2 points)

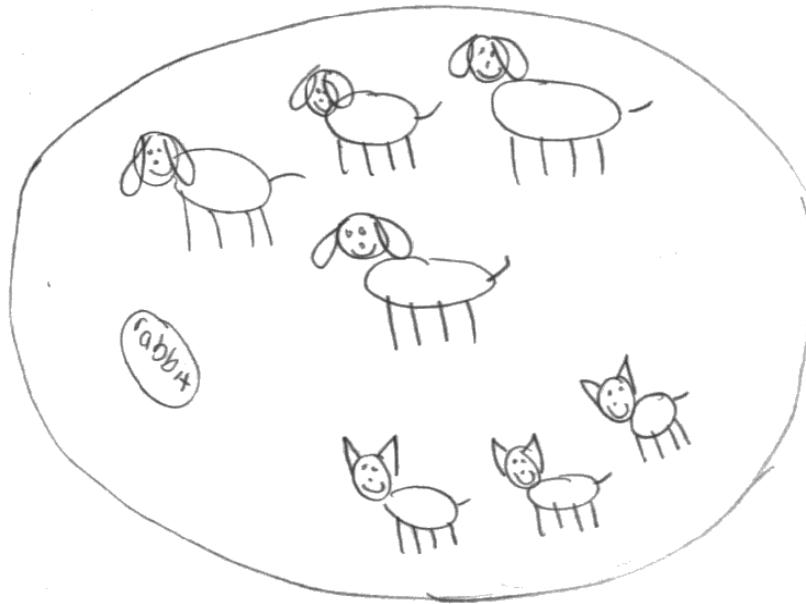
This response demonstrates a thorough understanding of the mathematical concepts in the task. The correct fraction of rabbits at the pet show is determined using mathematically sound processes.

GUIDE PAPER 3

43

Of the animals at a pet show, $\frac{3}{8}$ were cats and $\frac{4}{8}$ were dogs. The rest of the animals were rabbits. What fraction of the animals at the pet show were rabbits?

Show your work.



Answer $\frac{1}{8}$

Score Point 2 (out of 2 points)

This response demonstrates a thorough understanding of the mathematical concepts in the task. The correct fraction of rabbits at the pet show is determined using pictograms.

GUIDE PAPER 4

43

Of the animals at a pet show, $\frac{3}{8}$ were cats and $\frac{4}{8}$ were dogs. The rest of the animals were rabbits. What fraction of the animals at the pet show were rabbits?

Show your work.

$$\frac{4}{8} + \frac{3}{8} = \frac{7}{8}$$

Answer $\frac{7}{8}$

Score Point 1 (out of 2 points)

This response demonstrates only a partial understanding of the mathematical concepts in the task. The fraction of cats and dogs is calculated correctly but the rest of the task is not addressed. The response addresses only some elements of the task correctly.

GUIDE PAPER 5

43

Of the animals at a pet show, $\frac{3}{8}$ were cats and $\frac{4}{8}$ were dogs. The rest of the animals were rabbits. What fraction of the animals at the pet show were rabbits?

Show your work.



Answer 1 rabbit

Score Point 1 (out of 2 points)

This response demonstrates only a partial understanding of the mathematical concepts in the task. The fraction of rabbits is correctly represented using pictograms; however, an incorrect answer is provided. The response addresses only some elements of the task correctly.

GUIDE PAPER 6

43

Of the animals at a pet show, $\frac{3}{8}$ were cats and $\frac{4}{8}$ were dogs. The rest of the animals were rabbits. What fraction of the animals at the pet show were rabbits?

Show your work.

$$4+3=7 \\ \frac{7}{8} \quad 7 \text{ out of } 8$$

7 dogs and
5 cats
So now the last one is
the rabbit

Answer 1 rabbit

Score Point 1 (out of 2 points)

This response demonstrates only a partial understanding of the mathematical concepts in the task. The fraction of cats and dogs is correctly calculated; however, an incorrect process is applied to determine the fraction of rabbits. The response addresses only some elements of the task correctly.

GUIDE PAPER 7

43

Of the animals at a pet show, $\frac{3}{8}$ were cats and $\frac{4}{8}$ were dogs. The rest of the animals were rabbits. What fraction of the animals at the pet show were rabbits?

Show your work.

$$\frac{4}{8} - \frac{3}{8} = \frac{1}{8}$$

Check ✓

$$\frac{1}{8} + \frac{3}{8} = \frac{4}{8}$$

Answer $\frac{1}{8}$

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. A correct answer is determined using an incorrect procedure.

GUIDE PAPER 8

Additional

43

Of the animals at a pet show, $\frac{3}{8}$ were cats and $\frac{4}{8}$ were dogs. The rest of the animals were rabbits. What fraction of the animals at the pet show were rabbits?

Show your work.

$$\frac{3}{8} + \frac{4}{8} = \frac{7}{16}$$

There were $\frac{7}{16}$ rabbits.

Answer $\frac{7}{16}$

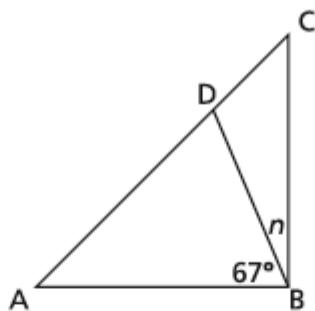
Score Point 0 (out of 2 points)

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

EXEMPLARY RESPONSE

44

Right triangle ABC is shown below.



Write an equation that can be used to determine the angle measure, in degrees, of angle DBC. Let n represent the measure of angle DBC. Then determine the measure of n .

Show your work.

$$n + 67 = 90$$

$$n = 90 - 67$$

$$n = 23 \text{ degrees}$$

Or any other valid process

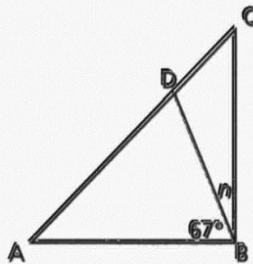
Answer $n = \underline{\hspace{2cm}}^{23}$ degrees

GUIDE PAPER 1

Additional

44

Right triangle ABC is shown below.



Write an equation that can be used to determine the angle measure, in degrees, of angle DBC. Let n represent the measure of angle DBC. Then determine the measure of n .

Show your work.

$$90^\circ - 67^\circ = n = 23^\circ$$

$$\begin{array}{r} 81^\circ \\ \cancel{100^\circ} \\ 67^\circ \\ \hline 23 \end{array}$$

Answer $n = \underline{\hspace{2cm}} 23^\circ$ degrees

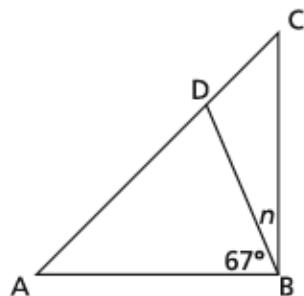
Score Point 2 (out of 2 points)

This response demonstrates a thorough understanding of the mathematical concepts in the task. The response contains a correct equation to determine n , which is solved correctly using a sound mathematical process.

GUIDE PAPER 2

44

Right triangle ABC is shown below.



Write an equation that can be used to determine the angle measure, in degrees, of angle DBC. Let n represent the measure of angle DBC. Then determine the measure of n .

Show your work.

$$90 - 67 = n$$

Answer $n =$ 23 degrees

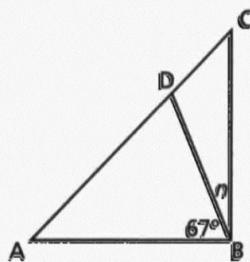
Score Point 2 (out of 2 points)

This response demonstrates a thorough understanding of the mathematical concepts in the task. The response contains a correct equation to determine n , which is solved correctly.

GUIDE PAPER 3

44

Right triangle ABC is shown below.



Write an equation that can be used to determine the angle measure, in degrees, of angle DBC. Let n represent the measure of angle DBC. Then determine the measure of n .

Show your work.

$$\begin{array}{r} 67 \\ + 3 \\ \hline 70 \\ + 20 \\ \hline \end{array} \qquad n + 67 = 90$$

Answer $n = \underline{\hspace{2cm}} \underline{\hspace{2cm}} 23$ degrees

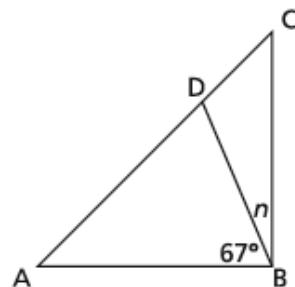
Score Point 2 (out of 2 points)

This response demonstrates a thorough understanding of the mathematical concepts in the task. The response contains a correct equation to determine n , which is solved correctly.

GUIDE PAPER 4

44

Right triangle ABC is shown below.



Write an equation that can be used to determine the angle measure, in degrees, of angle DBC. Let n represent the measure of angle DBC. Then determine the measure of n .

Show your work.

$$90 - 67 = 23$$

Answer $n =$ degrees

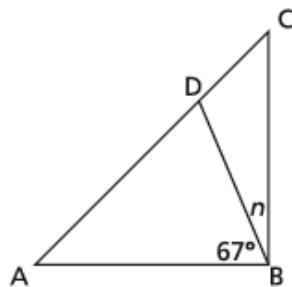
Score Point 1 (out of 2 points)

This response demonstrates only a partial understanding of the mathematical concepts in the task. No equation for n is written, but the correct answer is calculated using a sound process. The response addresses only some elements of the task correctly.

GUIDE PAPER 5

44

Right triangle ABC is shown below.



Write an equation that can be used to determine the angle measure, in degrees, of angle DBC. Let n represent the measure of angle DBC. Then determine the measure of n .

Show your work.

n is 25 degrees

$67 + n = 92$

Answer $n =$ degrees

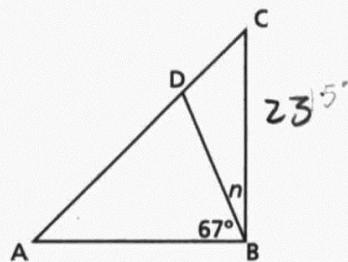
Score Point 1 (out of 2 points)

This response demonstrates only a partial understanding of the mathematical concepts in the task. The equation for n is written using 92° for a right angle instead of 90° , but it is solved correctly. The response addresses only some elements of the task correctly.

GUIDE PAPER 6

44

Right triangle ABC is shown below.



Write an equation that can be used to determine the angle measure, in degrees, of angle DBC. Let n represent the measure of angle DBC. Then determine the measure of n .

Show your work.

$$\begin{array}{rcl} \text{ABC} & = & 90^\circ \\ \text{ADB} & = & 67^\circ \end{array}$$

$$90 - 67 = 23$$

$$3 + 20 = 23$$

Answer $n =$ 23 degrees

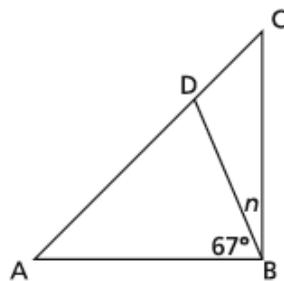
Score Point 1 (out of 2 points)

This response demonstrates only a partial understanding of the mathematical concepts in the task. No equation for n is written, but the correct answer is determined using a sound process. The response addresses only some elements of the task correctly.

GUIDE PAPER 7

44

Right triangle ABC is shown below.



Write an equation that can be used to determine the angle measure, in degrees, of angle DBC. Let n represent the measure of angle DBC. Then determine the measure of n .

Show your work.

because if the hole thing is worth 90 degrees and one part is 67 the other part has to be 33

Answer $n =$ degrees

Score Point 0 (out of 2 points)

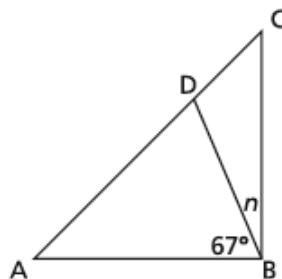
This response is not sufficient to demonstrate even a limited understanding of the mathematical concepts in the task. The response does not contain an equation involving n . Even though it recognizes a right angle is 90 degrees, holistically the answer is incorrect and the explanation does not describe how the 90 degrees is used to calculate the answer.

GUIDE PAPER 8

Additional

44

Right triangle ABC is shown below.



Write an equation that can be used to determine the angle measure, in degrees, of angle DBC . Let n represent the measure of angle DBC . Then determine the measure of n .

Show your work.

$$60 + 80 = 140 - 67 = 73$$

Answer $n =$ degrees

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 answer is incorrect and the work is irrelevant to the task.

EXEMPLARY RESPONSE

45

A teacher buys 8 packs of orange erasers and 6 packs of blue erasers for his classroom. There are 24 orange erasers in a pack and 28 blue erasers in a pack. What is the total number of erasers the teacher buys for his classroom?

Show your work.

$$\text{Orange erasers} = 8 \times 24 = 192 \text{ erasers}$$

$$\text{Blue erasers} = 6 \times 28 = 168 \text{ erasers}$$

$$\begin{aligned}\text{Total number of erasers} &= \\ 192 + 168 &= 360 \text{ erasers}\end{aligned}$$

Or any other valid process

Answer 360 erasers

GUIDE PAPER 1

Additional

45

A teacher buys 8 packs of orange erasers and 6 packs of blue erasers for his classroom. There are 24 orange erasers in a pack and 28 blue erasers in a pack. What is the total number of erasers the teacher buys for his classroom?

Show your work.

$$\begin{aligned}(8 \cdot 24) &= 32 + 160 = 192 \\ 192 + 168 & \\ (6 \cdot 28) &= 48 + 120 = 168\end{aligned}$$

Answer

erasers

Score Point 3 (out of 3 points)

This response demonstrates a thorough understanding of the mathematical concepts in the task. Sound mathematical processes are used to correctly determine the total number of erasers.

GUIDE PAPER 2

45

A teacher buys 8 packs of orange erasers and 6 packs of blue erasers for his classroom. There are 24 orange erasers in a pack and 28 blue erasers in a pack. What is the total number of erasers the teacher buys for his classroom?

Show your work.

$$\begin{array}{r} 24 \\ \times 8 \\ \hline 192 \end{array}$$

$$\begin{array}{r} 28 \\ \times 6 \\ \hline 168 \end{array}$$


$$\begin{array}{r} 192 \\ + 168 \\ \hline 360 \end{array}$$

Answer 360 erasers

Score Point 3 (out of 3 points)

This response demonstrates a thorough understanding of the mathematical concepts in the task. Sound mathematical processes are used to correctly determine the total number of erasers.

GUIDE PAPER 3

45

A teacher buys 8 packs of orange erasers and 6 packs of blue erasers for his classroom. There are 24 orange erasers in a pack and 28 blue erasers in a pack. What is the total number of erasers the teacher buys for his classroom?

Show your work.

$$8 \times 24 = 192 \quad 28 \times 6 = 168 \quad 192 + 168 = 360$$

Answer

360

erasers

Score Point 3 (out of 3 points)

This response demonstrates a thorough understanding of the mathematical concepts in the task. Sound mathematical processes are used to correctly determine the total number of erasers.

GUIDE PAPER 4

45

A teacher buys 8 packs of orange erasers and 6 packs of blue erasers for his classroom. There are 24 orange erasers in a pack and 28 blue erasers in a pack. What is the total number of erasers the teacher buys for his classroom?

Show your work.



Answer 336 erasers

Score Point 2 (out of 3 points)

This response demonstrates a partial understanding of the mathematical concepts in the task. The valid process of repeated addition is used; however, one pack of orange erasers is missing from the addition despite being represented graphically, leading to an incorrect answer. The response addresses most, but not all aspects of the task correctly.

GUIDE PAPER 5

45

A teacher buys 8 packs of orange erasers and 6 packs of blue erasers for his classroom. There are 24 orange erasers in a pack and 28 blue erasers in a pack. What is the total number of erasers the teacher buys for his classroom?

Show your work.

$$\begin{aligned} \text{orange erasers} &= 192 = 24 * 8 \\ \text{blue erasers} &= 48 = 28 * 6 \\ \text{total} &= 240 = 192 + 48 \end{aligned}$$

Answer

240

erasers

Score Point 2 (out of 3 points)

This response demonstrates a partial understanding of the mathematical concepts in the task. A correct process is used to determine the total number of erasers, but a calculation error in determining the number of blue erasers leads to an incorrect answer. The response addresses most, but not all aspects of the task correctly.

GUIDE PAPER 6

45

A teacher buys 8 packs of orange erasers and 6 packs of blue erasers for his classroom. There are 24 orange erasers in a pack and 28 blue erasers in a pack. What is the total number of erasers the teacher buys for his classroom?

Show your work.

orange $8 \times 24 = 192$	blue $6 \times 28 = 168$
----------------------------	--------------------------

Answer

360

erasers

Score Point 2 (out of 3 points)

This response demonstrates a partial understanding of the mathematical concepts in the task. The total number of both colors of eraser is calculated correctly, but the process to determine the total number of all erasers is not shown in the work. The response addresses most, but not all aspects of the task correctly.

GUIDE PAPER 7

45

A teacher buys 8 packs of orange erasers and 6 packs of blue erasers for his classroom. There are 24 orange erasers in a pack and 28 blue erasers in a pack. What is the total number of erasers the teacher buys for his classroom?

Show your work.

$$8 \times 28 = 198$$

$$6 \times 24 = 144$$

$$198 + 144 = 342$$

Answer

342

erasers

Score Point 1 (out of 3 points)

This response demonstrates only a limited understanding of the mathematical concepts in the task. The values 6 and 8 are transposed and the work contains a calculation error ($8 \times 28 \neq 198$). The products are then added correctly. The response addresses some elements of the task correctly.

GUIDE PAPER 8

Additional

45

A teacher buys 8 packs of orange erasers and 6 packs of blue erasers for his classroom. There are 24 orange erasers in a pack and 28 blue erasers in a pack. What is the total number of erasers the teacher buys for his classroom?

Show your work.

$$\begin{array}{r} 324 \\ \times 2 \\ \hline 1192 \\ + 24 \\ \hline 216 \end{array}$$

$$\begin{array}{r} 428 \\ \times 6 \\ \hline 168 \\ + 28 \\ \hline 196 \end{array}$$

$$\begin{array}{r} 1216 \\ + 196 \\ \hline 412 \end{array}$$

Answer 412 erasers

Score Point 1 (out of 3 points)

This response demonstrates only a limited understanding of the mathematical concepts in the task. The total number of both colors of erasers is correctly multiplied, but a conceptual error is made when an extra pack is added to each total. The incorrect totals are then added correctly. The response addresses some elements of the task correctly. Per Scoring Policy #8, this response cannot receive more than 50% credit.

GUIDE PAPER 9

45

A teacher buys 8 packs of orange erasers and 6 packs of blue erasers for his classroom. There are 24 orange erasers in a pack and 28 blue erasers in a pack. What is the total number of erasers the teacher buys for his classroom?

Show your work.

$$192+168=360$$

Answer

360

erasers

Score Point 1 (out of 3 points)

This response demonstrates only a limited understanding of the mathematical concepts in the task. The correct total number of erasers is determined through addition, but the process to determine the total number of each color of eraser is not shown in the work. The response contains the correct solution but the required work is limited.

GUIDE PAPER 10

45

A teacher buys 8 packs of orange erasers and 6 packs of blue erasers for his classroom. There are 24 orange erasers in a pack and 28 blue erasers in a pack. What is the total number of erasers the teacher buys for his classroom?

Show your work.

The total amount of erasers is 360 erasers the teacher bought for the class.

Answer

360

erasers

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. Per Scoring Policy #3, a correct answer with no work shown cannot receive credit.

GUIDE PAPER 11

Additional

45

A teacher buys 8 packs of orange erasers and 6 packs of blue erasers for his classroom. There are 24 orange erasers in a pack and 28 blue erasers in a pack. What is the total number of erasers the teacher buys for his classroom?

Show your work.

$$\begin{array}{r} 1 \\ 24 \\ + 28 \\ \hline 52 \\ + 14 \\ \hline 66 \end{array}$$

Answer 66 erasers

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 shown is not relevant to the task.