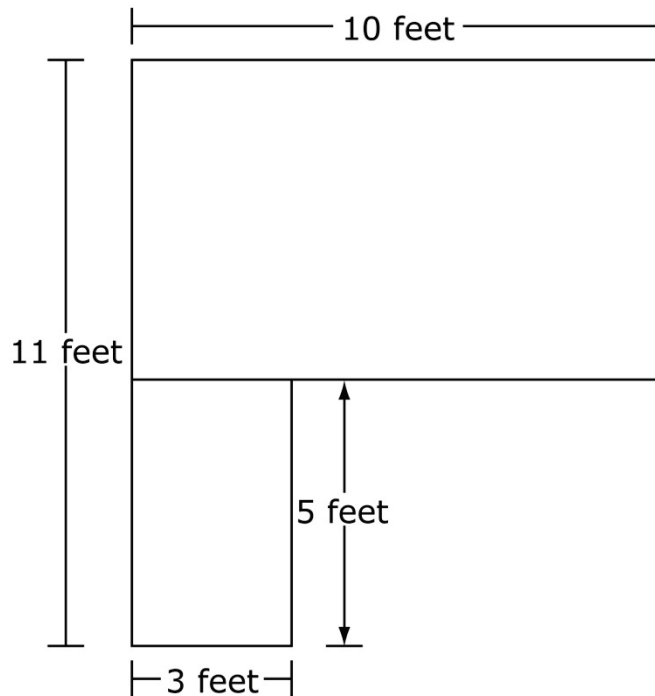


Grade 3 Mathematics Sample SR Item C1 T1

MAT.03.SR.1.000MD.I.236 C1 T1

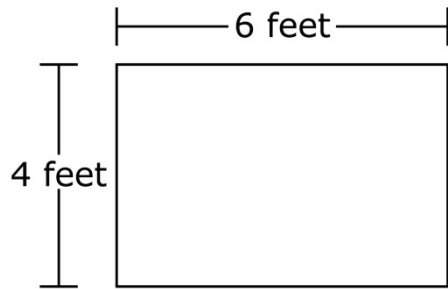
| | |
|--|---|
| Sample Item ID: | MAT.03.SR.1.000MD.I.236 |
| Grade: | 03 |
| Claim(s): | Claim 1: Concepts and Procedures Students can explain and apply mathematical concepts and carry out mathematical procedures with precision and fluency. |
| Assessment Target(s): | 1 I: Geometric measurement: understand concepts of area and relate area to multiplication and to addition. |
| Content Domain: | Measurement and Data |
| Standard(s): | 03.MD.7 |
| Mathematical Practice(s): | 1, 2, 4, 6 |
| DOK: | 2 |
| Item Type: | SR |
| Score Points: | 1 |
| Difficulty: | H |
| Key: | YNNY |
| Stimulus/Source: | |
| Target-Specific Attributes (e.g., accessibility issues): | |
| Notes: | |

Below are two rectangles that are joined together.



For numbers 1a–1d, choose Yes or No to indicate whether joining each rectangle to the existing two rectangles would total exactly 99 square feet.

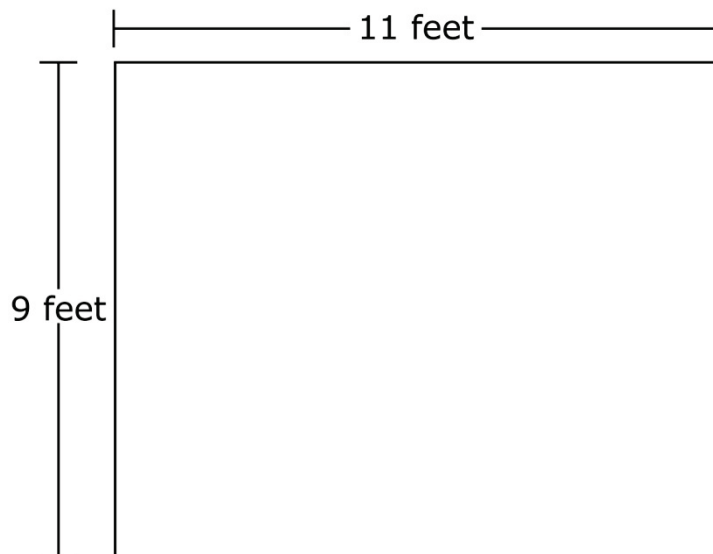
1a.



☐ Yes

☐ No

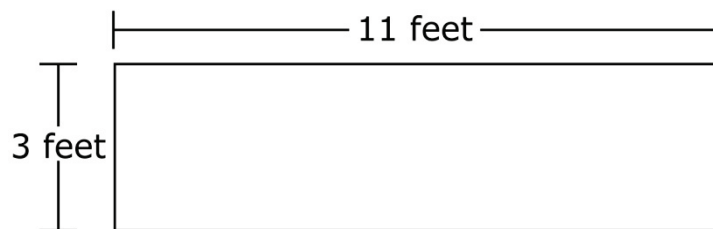
1b.



☐ Yes

☐ No

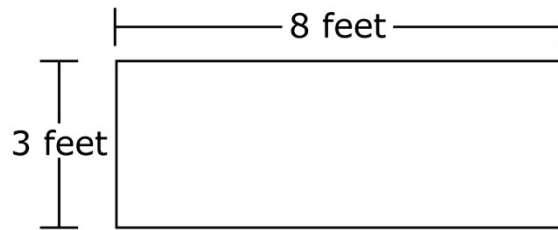
1c.



☐ Yes

☐ No

1d.



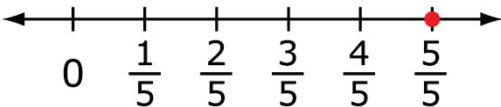
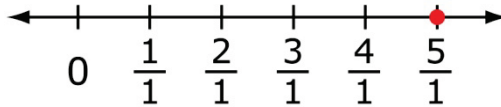
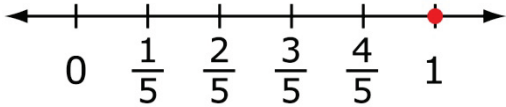
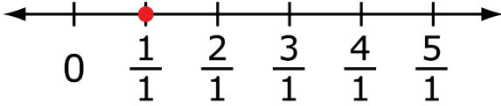
☐ Yes

☐ No

MAT.03.SR.1.000NF.F.266 C1 T1

| | |
|---|---|
| Sample Item ID: | MAT.03.SR.1.000NF.F.266 |
| Grade: | 03 |
| Claim(s): | Claim 1: Concepts and Procedures Students can explain and apply mathematical concepts and carry out mathematical procedures with precision and fluency. |
| Assessment Target(s): | 1 F: Develop understanding of fractions as numbers. |
| Content Domain: | Numbers and Operations |
| Standard(s): | 3.NF.1, 3.NF.2 |
| Mathematical Practice(s): | 3, 6 |
| DOK: | 1 |
| Item Type: | SR |
| Score Points: | 1 |
| Difficulty: | M |
| Key: | YNYN |
| Stimulus/Source: | |
| Target-Specific Attributes (e.g., accessibility issues): | |
| Notes: | Multi-part item |

For numbers 1a to 1d, choose Yes or No to indicate whether each number graphed on the number line represents one whole.

- 1a.  ☐ Yes ☐ No
- 1b.  ☐ Yes ☐ No
- 1c.  ☐ Yes ☐ No
- 1d.  ☐ Yes ☐ No

MAT.03.SR.1.000OA.A.220 C1 T1

| | |
|--|---|
| Sample Item ID: | MAT.03.SR.1.000OA.A.220 |
| Grade: | 03 |
| Claim(s): | Claim 1: Concepts and Procedures Students can explain and apply mathematical concepts and carry out mathematical procedures with precision and fluency. |
| Assessment Target(s): | 1 A: Represent and solve problems involving multiplication and division. |
| Content Domain: | Operations and Algebraic Thinking |
| Standard(s): | 3.OA.3 |
| Mathematical Practice(s): | 1, 4 |
| DOK: | 2 |
| Item Type: | SR |
| Score Points: | 1 |
| Difficulty: | M |
| Key: | NYYN |
| Stimulus/Source: | |
| Target-specific attributes (e.g., accessibility issues): | |
| Notes: | Multi-part item |

Marcus has 36 marbles. He is putting an equal number of marbles into 4 bags.

For 1a–1d, choose Yes or No to indicate whether each number sentence could be used to find the number of marbles Marcus puts in each bag.

- | | | | |
|-----|-------------------------|---------------------------|--------------------------|
| 1a. | $36 \times 4 = \square$ | <input type="radio"/> Yes | <input type="radio"/> No |
| 1b. | $36 \div 4 = \square$ | <input type="radio"/> Yes | <input type="radio"/> No |
| 1c. | $4 \times \square = 36$ | <input type="radio"/> Yes | <input type="radio"/> No |
| 1d. | $4 \div \square = 36$ | <input type="radio"/> Yes | <input type="radio"/> No |

MAT.03.SR.1.000OA.B.222 C1 T1

| | |
|---|---|
| Sample Item ID: | MAT.03.SR.1.000OA.B.222 |
| Grade: | 03 |
| Claim(s): | Claim 1: Concepts and Procedures Students can explain and apply mathematical concepts and carry out mathematical procedures with precision and fluency. |
| Assessment Target(s): | 1 B: Understand properties of multiplication and the relationship between multiplication and division. |
| Content Domain: | Operations and Algebraic Thinking |
| Standard(s): | 3.OA.5 |
| Mathematical Practice(s): | 1, 2, 3 |
| DOK: | 1 |
| Item Type: | SR |
| Score Points: | 1 |
| Difficulty: | M |
| Key: | YNNY |
| Stimulus/Source: | |
| Target-Specific Attributes (e.g., accessibility issues): | |
| Notes: | Multi-part item |

For each expression in 1a–1d, answer Yes or No if the expression is equivalent to the product of 7 and 9.

- | | | | |
|-----|-------------------------------|---------------------------|--------------------------|
| 1a. | $7 \times (1 + 8)$ | <input type="radio"/> Yes | <input type="radio"/> No |
| 1b. | $9 \times (3 + 6)$ | <input type="radio"/> Yes | <input type="radio"/> No |
| 1c. | $(2 \times 5) + (5 \times 4)$ | <input type="radio"/> Yes | <input type="radio"/> No |
| 1d. | $(9 \times 2) + (9 \times 5)$ | <input type="radio"/> Yes | <input type="radio"/> No |

MAT.03.SR.1.000OA.C.237 C1 T1

| | |
|--|---|
| Sample Item ID: | MAT.03.SR.1.000OA.C.237 |
| Grade: | 03 |
| Claim(s): | Claim 1: Concepts and Procedures Students can explain and apply mathematical concepts and carry out mathematical procedures with precision and fluency. |
| Assessment Target(s): | 1 C: Multiply and divide within 100. |
| Content Domain: | Operations and Algebraic Thinking |
| Standard(s): | 3.OA.7 |
| Mathematical Practice(s): | 1, 2, 6 |
| DOK: | 1 |
| Item Type: | SR |
| Score Points: | 1 |
| Difficulty: | L |
| Key: | YNY |
| Stimulus/Source: | |
| Target-Specific Attributes (e.g., accessibility issues): | |
| Notes: | Multi-Part Item |

For items 1a–1c, choose Yes or No to show whether putting the number 7 in the box would make the equation true.

1a. $10 \times \square = 70$

☐ Yes

☐ No

1b. $48 \div \square = 6$

☐ Yes

☐ No

1c. $63 \div \square = 9$

☐ Yes

☐ No

MAT.03.SR.1.00NBT.A.217 C1 T1

| | |
|--|---|
| Sample Item ID: | MAT.03.SR.1.00NBT.A.217 |
| Grade: | 03 |
| Claim(s): | Claim 1: Concepts and Procedures Students can explain and apply mathematical concepts and carry out mathematical procedures with precision and fluency. |
| Assessment Target(s): | 1 E: Use place-value understanding and properties of operations to perform multi-digit arithmetic. |
| Content Domain: | Number and Operations in Base Ten |
| Standard(s): | 3.NBT.2 |
| Mathematical Practice(s): | 2, 4, 6 |
| DOK: | 1 |
| Item Type: | SR |
| Score Points: | 1 |
| Difficulty: | L |
| Key: | 9 from tens and 2 from ones OR 8 from tens and 12 from ones |
| Stimulus/Source: | |
| Target-specific attributes (e.g., accessibility issues): | Add and subtract within 1000. |
| Notes: | |

The number sentence below can be solved using tens and ones.

$$67 + 25 = \underline{\quad?} \text{ tens and } \underline{\quad?} \text{ ones.}$$

Select one number from each column to make the number sentence true.

| Tens | Ones |
|-------------------------|--------------------------|
| <input type="radio"/> 2 | <input type="radio"/> 2 |
| <input type="radio"/> 6 | <input type="radio"/> 5 |
| <input type="radio"/> 8 | <input type="radio"/> 10 |
| <input type="radio"/> 9 | <input type="radio"/> 12 |

Key and Distractor Analysis:

| Tens: | Ones: |
|---|--|
| 2: Thinks ones place 6: Tens place for first addend 8: Key (with 12 from ones) 9: Key (with 2 from ones) | 2: Key (with 9 from tens) 5: Ones place of second addend 10: Subtracts 10 ones, but does not add to tens place 12: Key (with 8 from tens) |

MAT.03.CR.1.000OA.A.230 C1 T1

| | |
|--|--|
| Sample Item ID: | MAT.03.CR.1.000OA.A.230 |
| Grade: | 03 |
| Claim(s): | Claim 1: Concepts and Procedures Students can explain and apply mathematical concepts and carry out mathematical procedures with precision and fluency. |
| Assessment Target(s): | 1 A: Represent and solve problems involving multiplication and division. 1 E: Use place value understanding and properties of arithmetic to perform multi-digit arithmetic. |
| Content Domain: | Operations and Algebraic Thinking |
| Standard(s): | 3.OA.2, 3.OA.7, 3.NBT.3 |
| Mathematical Practice(s): | 1 |
| DOK: | 1 |
| Item Type: | CR |
| Score Points: | 1 |
| Difficulty: | L |
| Key: | 6 |
| Stimulus/Source: | |
| Target-Specific Attributes (e.g., Accessibility Issues): | |
| Notes: | The response box will only accept up to 3 digits. |

Cali had 60 pounds of sand. The sand was measured equally into bags. Each bag held 10 pounds of sand. How many bags of sand did Cali have?

Bags

Grade 03 Mathematics Sample CR Item C1 T1

MAT.03.CR.1.000OA.D.234 C1 T1

| | |
|--|---|
| Sample Item ID: | MAT.03.CR.1.000OA.D.234 |
| Grade: | 03 |
| Claim(s): | Claim 1: Concepts and Procedures Students can explain and apply mathematical concepts and carry out mathematical procedures with precision and fluency. |
| Assessment Target(s): | 1 D: Solve problems involving the four operations, and identify and explain patterns in arithmetic. |
| Content Domain: | Operations and Algebraic Thinking |
| Standard(s): | 3.OA.8, 3.OA.5, 3.NBT.3 |
| Mathematical Practice(s): | 1, 2, 6 |
| DOK: | 2 |
| Item Type: | CR |
| Score Points: | 1 |
| Difficulty: | M |
| Key: | 80 |
| Stimulus/Source: | |
| Target-Specific Attributes (e.g., Accessibility Issues): | |
| Notes: | Response box will accept up to 4 numeric digits. |

A roller skating team has 10 members. Each team member has 2 skates. Each skate has 4 wheels.

What is the total number of skate wheels that the team has?

wheels

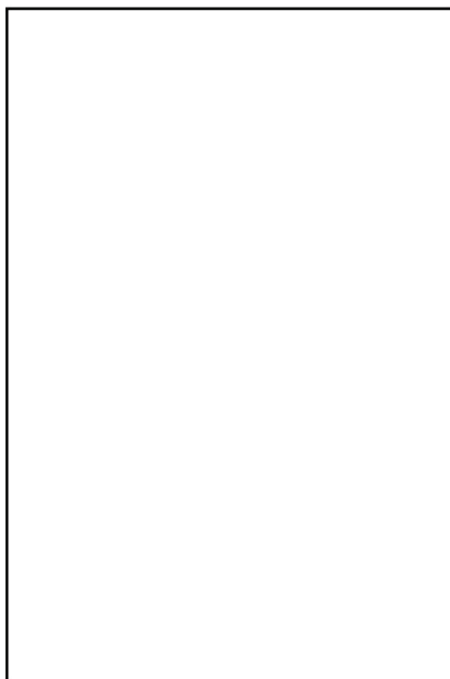
Key and Rationale:

80 (10 x 2 x 4)

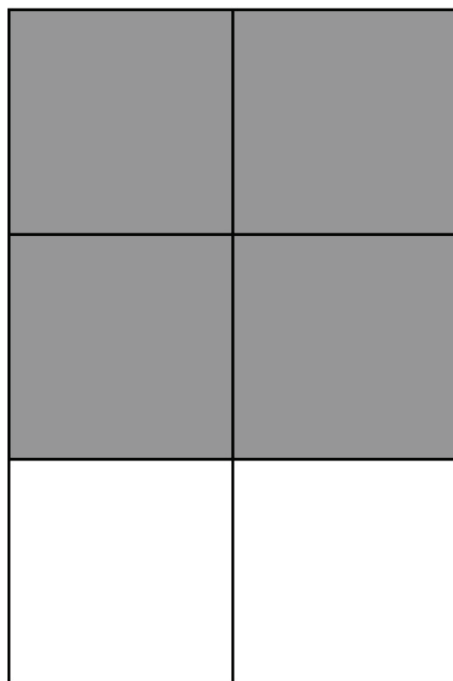
MAT.03.TE.1.0000G.K.231 C1 T1

| | |
|--|---|
| Sample Item ID: | MAT.03.TE.1.0000G.K.231 |
| Grade: | 03 |
| Claim(s): | Claim 1: Concepts and Procedures Students can explain and apply mathematical concepts and carry out mathematical procedures with precision and fluency. |
| Assessment Target(s): | 1 K: Reason with shape and their attributes. |
| Content Domain: | Geometry |
| Standard(s): | 3.G.2 |
| Mathematical Practice(s): | 1, 2, 4 |
| DOK: | 1 |
| Item Type: | TE |
| Score Points: | 1 |
| Difficulty: | M |
| Key: | See Sample Top-Score Response. |
| Stimulus/Source: | |
| Target-Specific Attributes (e.g., accessibility issues): | Students with fine motor skill disabilities may have difficulty with this item. |
| Notes: | TE Template: Partition Object Then Select |

Shade $\frac{4}{6}$ of the rectangle below. Use the line tool to divide the rectangle by creating horizontal and vertical lines.



Sample Top-Score Response:



TE Information:

Item Code: MAT.03.TE.1.0000G.K.231

Template: Partition Object Then Select

Interaction Space Parameters:

- A. Rectangle (w=100, h=200)
- B. True (allow horizontal partitions)
- C. True (allow vertical partitions)
- D. True (limit the number of segments that can be created)
- E. 10 (a maximum of 12 segments can be created)
- F. False (do not limit the number of segments that can be selected)

Scoring Data:

{Number of Segments, Number Selected, Score}
{6, 4, 1}

MAT.03.TE.1.000MD.H.239 C1 T1

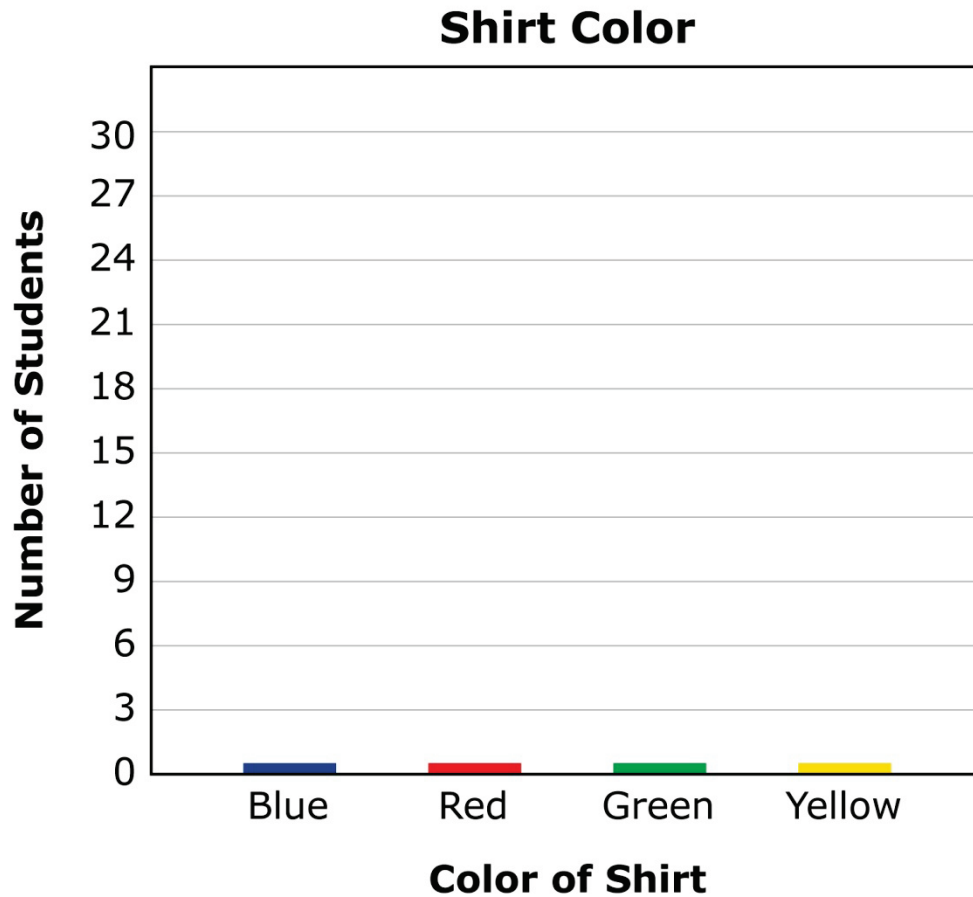
| | |
|--|---|
| Sample Item ID: | MAT.03.TE.1.000MD.H.239 |
| Grade: | 03 |
| Claim(s): | Claim 1: Concepts and Procedures Students can explain and apply mathematical concepts and interpret and carry out mathematical procedures with precision and fluency. |
| Assessment Target(s): | 1 H: Represent and interpret data. |
| Content Domain: | Measurement and Data |
| Standard(s): | 3.MD.3 |
| Mathematical Practice(s): | 1, 2, 4, 5, 6 |
| DOK: | 2 |
| Item Type: | TE |
| Score Points: | 2 |
| Difficulty: | M |
| Key: | See Sample Top-Score Response. |
| Stimulus/Source: | |
| Target-Specific Attributes (e.g., accessibility issues): | Students with visual impairments may have accessibility issues. |
| Notes: | TE Template: Select Defined Partitions |

Ms. Hayden made a table to show the number of students in the third grade who were wearing each color of shirt.

Shirt Colors

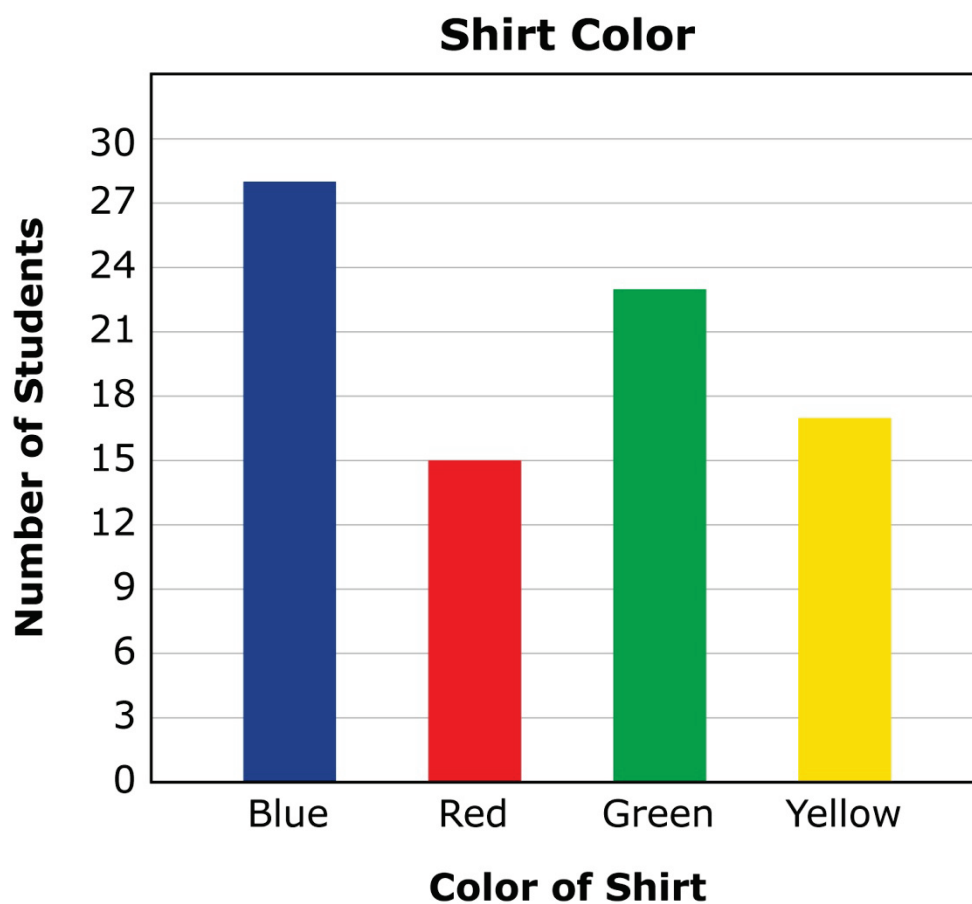
| Color of Shirt | Number of Students |
|----------------|--------------------|
| Blue | 28 |
| Red | 15 |
| Green | 23 |
| Yellow | 17 |

Use the graphing tool to complete a bar graph that shows the information in the table.



[The graphing tool will allow students to pull up a blue line to create the blue bar. Same for all the colors labeled on the horizontal axis. They will be movable segments.]

Sample Top-Score Response:



Scoring Rubric:

Responses to this item will receive 0-2 points, based on the following:

2 points: The student shows thorough understanding of drawing a scaled bar graph to represent a data set with several categories by selecting the correct sections in the bar graph (28, 15, 23, 17).

1 point: The student shows partial understanding of drawing a scaled bar graph to represent a data set with several categories by selecting three out of four of the correct sections in the bar graph (28, 25, 23, 17).

0 points: The student shows little or inconsistent understanding of drawing a scaled bar graph to represent a data set with several categories.

Item Code: MAT.03.TE.1.000MD.H.239

Template: Select Defined Partitions

Interaction Space Parameters:

A: List of objects:

Bar: 33

Bar: 33

Bar: 33

Bar: 33

B: False (do not limit the number of segments that can be selected)

Scoring Data:

{Bar1: 28; Bar2: 15; Bar3: 23; Bar4: 17} = 2

{Bar1: 28; Bar2: 15; Bar3: 23; Bar4: *} = 1

{Bar1: 28; Bar2: 15; Bar3: *; Bar4: 17} = 1

{Bar1: 28; Bar2: *; Bar3: 23; Bar4: 17} = 1

{Bar1: *; Bar2: 15; Bar3: 23; Bar4: 17} = 1

Scoring Rule Explanation:

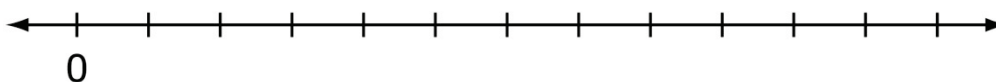
Based on the scoring rule (common to all items that implement the template) and the scoring data for this particular item, students that select twenty eight of the segments of the first bar, fifteen of the segments of the second bar, twenty-three of the segments of the third bar, and seventeen of the segments of the fourth bar will receive full credit (2 points). This scoring data allows for partial scoring such that if a student makes one mistake but selects the correct number of segments from the other three bars, the student will receive partial credit (1 point). All other selections will receive a score of 0.

Grade 3 Mathematics Sample TE Item C1 T1

MAT.03.TE.1.000NF.F.233 C1 T1

| | |
|--|---|
| Sample Item ID: | MAT.03.TE.1.000NF.F.233 |
| Grade: | 03 |
| Claim(s): | Claim 1: Concepts and Procedures Students can explain and apply mathematical concepts and carry out mathematical procedures with precision and fluency. |
| Assessment Target(s): | 1 F: Extend understanding of fraction equivalence and ordering. |
| Content Domain: | Number and Operations—Fractions |
| Standard(s): | 4.NF.1, 4.NF.2 |
| Mathematical Practice(s): | 1, 2, 4, 5 |
| DOK: | 2 |
| Item Type: | TE |
| Score Points: | 1 |
| Difficulty: | H |
| Key: | See Sample Top-Score Response. |
| Stimulus/Source: | |
| Target-specific attributes (e.g., accessibility issues): | Students with visual impairments may have accessibility issues. |
| Notes: | TE Template: Select and Order |

The number line below is divided into equal parts. The zero (0) is already placed on the number line.



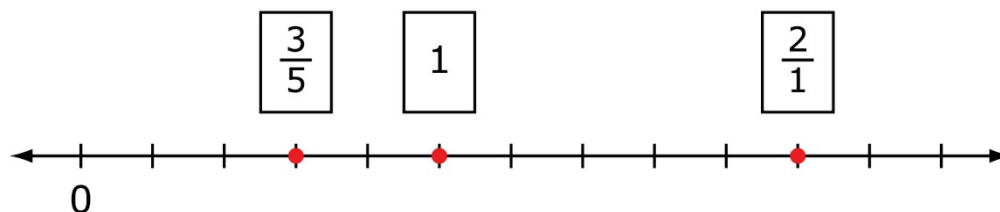
Place each of the following numbers in the proper place on number line. To place a number, click on a tile and then click on the number line. You may move and clear numbers as needed.

1

$\frac{2}{1}$

$\frac{3}{5}$

Sample Top-Score Response:



TE Information:

Item Code: MAT.03.TE.1.000NF.F.233

Template: Select and Order

Interaction Space Parameters:

- A. An image with 13 objects. Each line on the number line will be represented as 1 object.
- B. Three images of the numbers.

Scoring Data:

$\{1=C, 4=D, 6=A, 11=B\} = 1$
 $\{2=C, 5=D, 7=A, 12=B\} = 1$
 $\{3=C, 6=D, 8=A, 13=B\} = 1$

MAT.03.TE.1.000NF.F.240 C1 T1

| | |
|--|---|
| Sample Item ID: | MAT.03.TE.1.000NF.F.240 |
| Grade: | 03 |
| Claim(s): | Claim 1: Concepts and Procedures Students can explain and apply mathematical concepts and interpret and carry out mathematical procedures with precision and fluency. |
| Assessment Target(s): | 1 F: Develop understanding of fractions as numbers. 1 K: Reason with shapes and their attributes. |
| Content Domain: | Number and Operations—Fractions |
| Standard(s): | 3.NF.3, 3.G.2 |
| Mathematical Practice(s): | 1, 2, 4 |
| DOK: | 2 |
| Item Type: | TE |
| Score Points: | 3 |
| Difficulty: | M |
| Key: | See Sample Top-Score Response. |
| Stimulus/Source: | |
| Target-specific attributes (e.g., accessibility issues): | May present a challenge for students with visual or fine motor skill disabilities. |
| Notes: | TE Template: Partition Objects; then Select and Drop Down. |

Use the line tool and shading tool to represent the following fractions. The rectangles can be divided using horizontal or vertical lines.

Part A

Shade $\frac{2}{3}$ of this rectangle.

**Part B**

Shade $\frac{2}{6}$ of this rectangle.

**Part C**

Correctly complete the statement below by using the choices in the drop-down box.

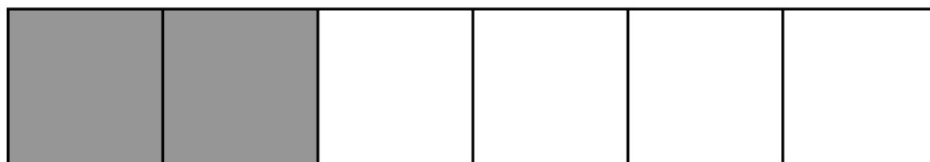
$$\frac{2}{3} \square \frac{2}{6}$$

($>$, $<$, $=$)

Sample Top-Score Response:

Each part of this item is scored independently. Each correct answer receives 1 point.

Part A and Part B



Part C

$$\frac{2}{3} > \frac{2}{6}$$

TE Information:

Item Code: MAT.03.TE.1.000NF.F.240 Part A

Template: Partition Object Then Select

Interaction Space Parameters:

A: Rectangle, w = 200, h = 100

B: True

C: True

D: True

E: 5

F: True

G: 5

Scoring Data:

{3, 2, 1}

Item Code: MAT.03.TE.1.000NF.F.240 Part B

Template: Partition Object Then Select

Interaction Space Parameters:

A: Rectangle, w = 200, h = 100

B: True

C: True

D: True

E: 11

F: True

G: 11

Scoring Data:

{6, 2, 1}

Item Code: MAT.04.TE.1.000NF.F.407 Part C

Template: Drop Downs

Interaction Space Parameters:

A. 1

B. >, <, =

Scoring Data:

Menu 1 = >

Scoring Rule:

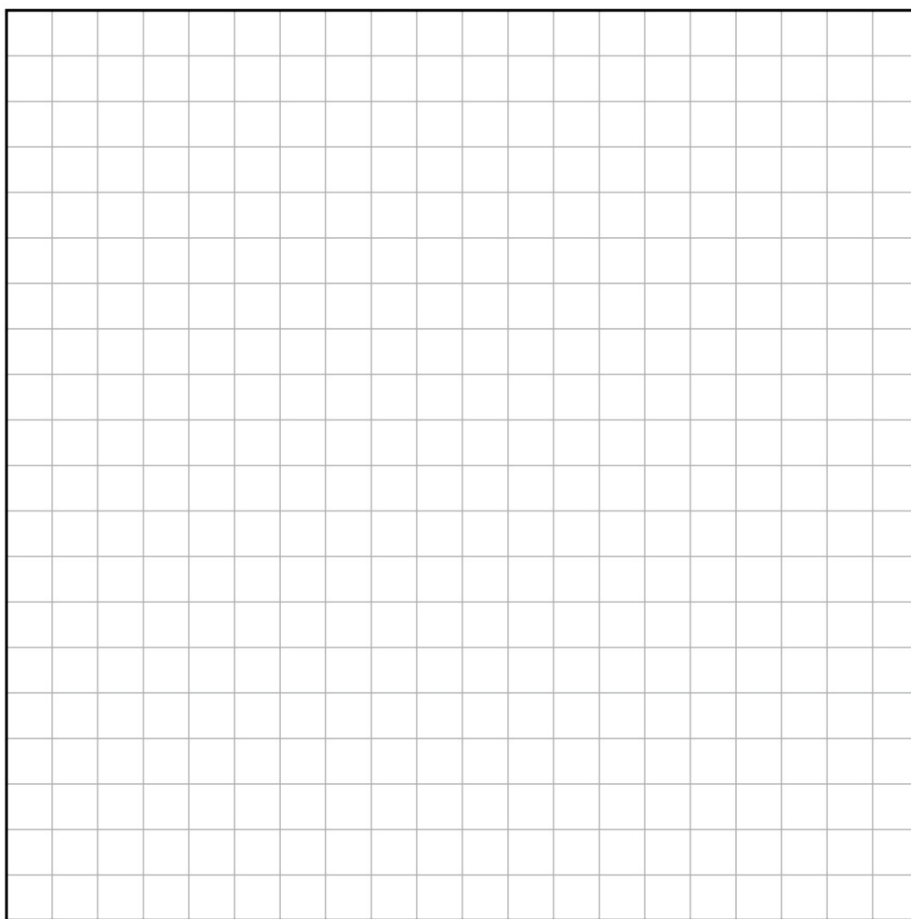
(M1)=1

MAT.03.ER.2.000MD.C.022 Claim 2

| | |
|--|---|
| Sample Item ID: | MAT.03.ER.2.000MD.C.022 |
| Grade: | 03 |
| Primary Claim: | Claim 2: Problem Solving Students can solve a range of well-posed problems in pure and applied mathematics, making productive use of knowledge and problem-solving strategies. |
| Secondary Claim(s): | <p>Claim 3: Communicating Reasoning Students can clearly and precisely construct viable arguments to support their own reasoning and to critique the reasoning of others.</p> <p>Claim 1: Concepts and Procedures Students can explain and apply mathematical concepts and carry out mathematical procedures with precision and fluency.</p> |
| Primary Content Domain: | Measurement and Data |
| Secondary Content Domain(s): | Operations and Algebra |
| Assessment Target(s): | <p>2C: Interpret results in the context of a situation.</p> <p>2D: Identify important quantities in a practical situation and map their relationships (e.g., using diagrams, two-way tables, graphs, flowcharts, or formulas).</p> <p>3A: Test propositions or conjectures with specific examples.</p> <p>3F: Base arguments on concrete referents such as objects, drawings, diagrams, and actions.</p> <p>2A: Apply mathematics to solve well-posed problems arising in everyday life, society, and the workplace.</p> <p>1J: Geometric measurement: recognize perimeter as an attribute of plane figures and distinguish between linear and area measures.</p> <p>1D: Solve problems involving the four operations, and identify and explain patterns in arithmetic.</p> |
| Standard(s): | 3.MD.7, 3.OA.8 |
| Mathematical Practice(s): | 1, 2, 4, 6 |
| DOK: | 3 |
| Item Type: | ER |
| Score Points: | 4 |
| Difficulty: | M |
| Key: | See Sample Top-Score Response. |
| Stimulus/Source: | |
| Target-Specific Attributes (e.g., Accessibility Issues): | |
| Notes: | Part of PT set |

Jasper used the expression $5 \times (10 + 3)$ to find the area of a rectangular closet floor, in square feet.

On the grid, draw a rectangle that Jasper could have measured.



What is the area of the closet floor? _____ square feet

Jasper has 200 square feet of tile. He will use some of the tile to cover the closet floor. He will only use whole tiles.

How many square feet of tile will Jasper have left after covering the closet floor with tile?

_____ square feet

Jasper wants to use some of the remaining tile to cover the floor of a kitchen. The kitchen is 12 feet long and 12 feet wide.

Does Jasper have enough tiles to cover the kitchen floor? Circle your answer.

Yes No

Show how you got your answer. You may use drawings, mathematical expressions/equations, and words.

Sample Top-Score Response:

Draws a 5x13 rectangle

65

135

11

No

He only has 135 square feet of tile. $12 \times 12 = 144$, this is more than 135.

Scoring Rubric:

Responses to this item will receive 0–4 points, based on the following:

4 points: The student shows thorough understanding of solving word problems involving the concepts of area by doing the following:

- Draws a 5x13 rectangle
- Writes 65
- Writes 135
- Writes 11
- Circles "No" (or if not responding here, states no in the work that follows)
- Shows work that leads to the answer that Jasper does not have enough tile (or that he needs more)

3 points: The student shows understanding of solving word problems involving the concepts of area by doing 4 or 5 of the following **OR** makes one calculation error with supporting follow-through.

- Draws a 5x13 rectangle
- Writes 65
- Writes 135
- Writes 11
- Circles "No"
- Shows work that could lead to the answer that Jasper does not have enough tile (or that he needs more)

2 points: The student shows partial understanding of solving word problems involving the concepts of area by doing 3 of the following **OR** makes two calculation errors with follow-through.

- Draws a 5x13 rectangle
- Writes 65
- Writes 135
- Writes 11
- Circles "No"
- Shows work that could lead to the answer that Jasper does not have enough tile (or that he needs more)

1 point: The student shows limited understanding of solving word problems involving the concepts of area by doing 2 of the following **OR** makes more than two calculation errors but shows a strategy that could lead to a correct answer.

- Draws a 5x13 rectangle
- Writes 65
- Writes 135
- Writes 11
- Circles "No"
- Shows work that could lead to the answer that Jasper does not have enough tile (or that he needs more)

0 points: The student shows inconsistent or little or no understanding of solving word problems involving the concepts of area.

MAT.03.ER.3.000MD.E.606 Claim 3

| | |
|--|---|
| Sample Item ID: | MAT.03.ER.3.000MD.E.606 |
| Grade: | 03 |
| Primary Claim: | Claim 3: Communicating Reasoning Students can clearly and precisely construct viable arguments to support their own reasoning and to critique the reasoning of others. |
| Secondary Claim(s): | Claim 1: Concepts and Procedures Students can explain and apply mathematical concepts and carry out mathematical procedures with precision and fluency. |
| Primary Content Domain: | Measurement and Data |
| Secondary Content Domain(s): | |
| Assessment Target(s): | 3 E: Distinguish correct logic or reasoning from that which is flawed and—if there is a flaw in the argument—explain what it is. 1 I: Recognize perimeter as an attribute of plane figures and distinguish between linear and area measures. |
| Standard(s): | 3.MD.5, 3.MD.6, 3.MD.8 |
| Mathematical Practice(s): | 1, 2, 3, 4, 6, 7 |
| DOK: | 2 |
| Item Type: | ER |
| Score Points: | 2 |
| Difficulty: | M |
| Key: | See Sample Top-Score Response. |
| Stimulus/Source: | |
| Target-Specific Attributes (e.g., Accessibility Issues): | |
| Notes: | Part of PT set |

Look at Figure Q and Figure R below.

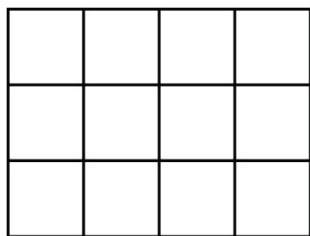


Figure Q

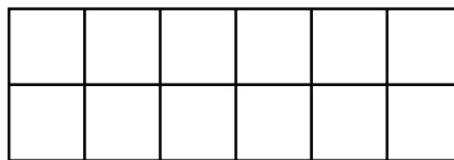


Figure R

 = 1 square centimeter

Mia said Figure Q and Figure R have equal areas and equal perimeters. She supported her thinking by saying that any two figures made of an equal number of unit squares always have equal areas and equal perimeters.

Is Mia correct? In the space below, use pictures, numbers, and words to explain why or why not.

Sample Top-Score Response:

No

Only the areas of the two figures are equal. Both figures have an area of 12 square units. The perimeters of the figures are not equal. Figure Q has a perimeter of 14 centimeters, but Figure R has a perimeter of 16 centimeters. Any two figures with an equal number of unit squares have to have equal areas but not equal perimeters.

Scoring Rubric:

Responses to this item will receive 0–2 points, based on the following:

2 points: The student demonstrates thorough understanding of distinguishing and explaining reasoning from that which is flawed and exhibits rectangles with the same areas and different perimeters by recognizing that Mia’s reasoning is incorrect and identifying the correct perimeters of both figures and providing a complete explanation.

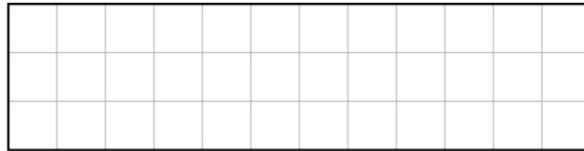
1 point: The student demonstrates partial understanding of distinguishing and explaining reasoning from that which is flawed and exhibits rectangles with the same areas and different perimeters by recognizing that Mia’s reasoning is incorrect, but provides a partial explanation about the perimeters and areas of both figures. OR The student answers Yes and thinks Mia is correct, but provides a complete explanation with the incorrect answer.

0 points: The student shows little or no understanding of distinguishing and explaining correct reasoning from that which is flawed. The student does not recognize that rectangles can have equal areas, but different perimeters.

MAT.03.ER.3.000MD.F.602 Claim 3

| | |
|--|---|
| Sample Item ID: | MAT.03.ER.3.000MD.F.602 |
| Grade: | 03 |
| Primary Claim: | Claim 3: Communicating Reasoning Students can clearly and precisely construct viable arguments to support their own reasoning and to critique the reasoning of others. |
| Secondary Claim(s): | <p>Claim 2: Problem Solving Students can solve a range of well-posed problems in pure and applied mathematics, making productive use of knowledge and problem-solving strategies.</p> <p>Claim 1: Concepts and Procedures Students can explain and apply mathematical concepts and carry out mathematical procedures with precision and fluency.</p> |
| Primary Content Domain: | Measurement and Data |
| Secondary Content Domain(s): | Number and Operations in Base Ten, Operations and Algebraic Thinking |
| Assessment Target(s): | <p>3F: Base arguments on concrete referents such as objects, drawings, diagrams, and actions.</p> <p>2A: Apply mathematics to solve well-posed problems arising in everyday life, society, and the workplace.</p> <p>2D: Identify important quantities in a practical situation and map their relationships (e.g., using diagrams, two-way tables, graphs, flowcharts, or formulas).</p> <p>1J: Geometric measurement: recognizing perimeter as an attribute of plane figures and distinguish between linear and area measures.</p> |
| Standard(s): | 3.MD.08, 3.MD.7, 3.OA.8, 3.NBT.2 |
| Mathematical Practice(s): | 1, 2, 3, 4, 5, 6 |
| DOK: | 3 |
| Item Type: | ER |
| Score Points: | 3 |
| Difficulty: | M |
| Key: | See Sample Top-Score Response. |
| Stimulus/Source: | |
| Target-Specific Attributes (e.g., Accessibility Issues): | |
| Notes: | Part of PT set |

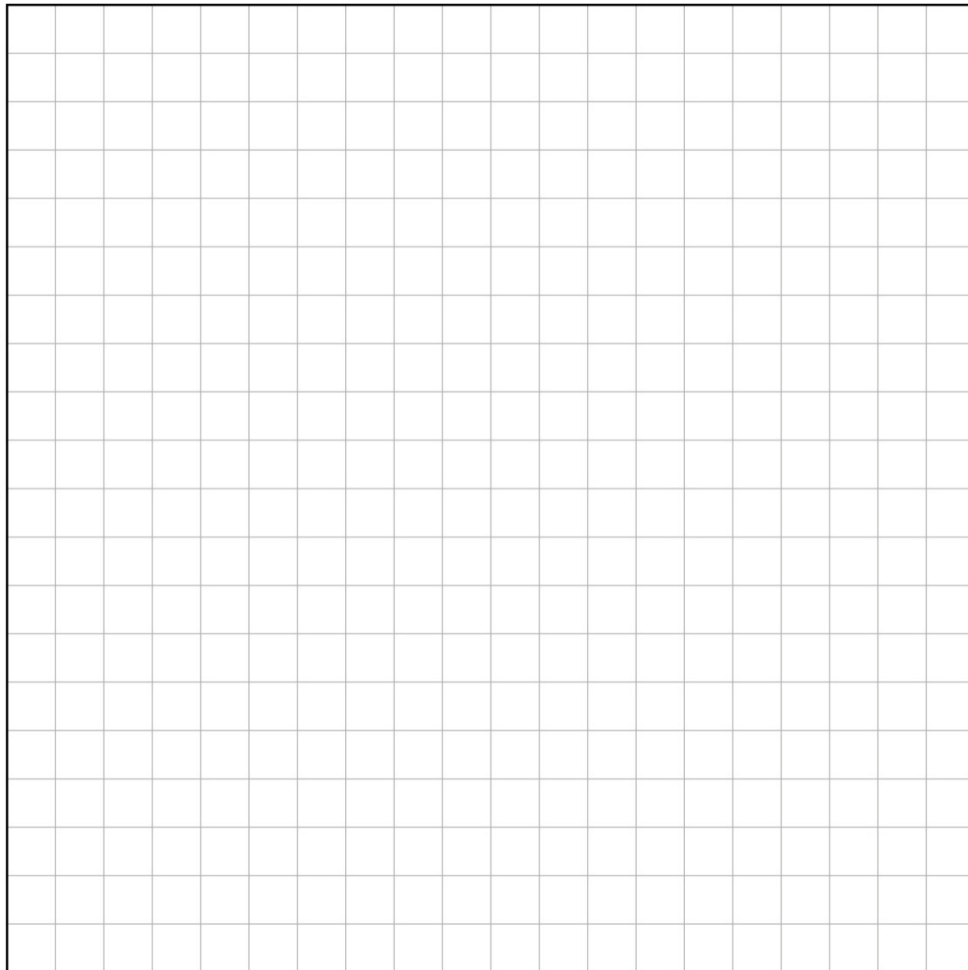
Ms. Flinn has a garden that is 12 feet long and 3 feet wide.



What is the area of Ms. Flinn's garden? _____ square feet

She wants to make another garden that has the same area, but a different perimeter.

Use the grid to show a rectangle that has the same area, but a different perimeter than Ms. Flinn's garden.



What are the length, width, and perimeter of the rectangle you drew?

Length = _____ feet

Width = _____ feet

Perimeter = _____ feet

Show how you know the two gardens have the same area using pictures, words, and/or numbers.

Sample Top-Score Response:

36 square feet

Draws a rectangle on the grid that has an area of 36 square feet, but a perimeter that is different from 30 feet (1x36, 2x18, 4x9, 6x6)

Writes the correct length, width, and perimeter (74, 40, 26, 24)

I counted the squares inside the first rectangle garden and there were 36. I counted the squares in the garden I drew and there were 36.

Scoring Rubric:

Responses to this item will receive 0–3 points, based on the following:

3 points: The student demonstrates thorough understanding of solving word problems involving the concepts of area by writing 36 as the area of the garden, drawing a rectangle with an area of 36 square feet with a different perimeter than 30, writing corresponding length, width, and perimeter of the new rectangle and showing how the two gardens have the same area.

2 points: The student demonstrates understanding of solving word problems involving the concepts of area by writing 30 as the area of the garden, drawing a rectangle with an perimeter of 30 feet that is not 12×3 , writing corresponding length, width, and perimeter of the new rectangle and showing how the two gardens have the same area OR writing 36 as the area of the garden, drawing a rectangle with an area of 36 square feet, writing corresponding length, width, and perimeter of the new rectangle but not showing how the two gardens have the same area OR writing 36 as the area of the garden, drawing a rectangle with an area of 36 square feet, writing corresponding length, width, and perimeter of the new rectangle (with one error in notation) and showing how the two gardens have the same area OR writing a number other than 36 as the area of the garden, drawing a rectangle with an area of the number of square feet written, writing corresponding length, width, and perimeter of the new rectangle and showing how the two gardens have the same area.

1 point: The student demonstrates partial understanding of solving word problems involving the concepts of area writing 36 as the area of the garden OR drawing a rectangle with an area of the number of square feet written and writing corresponding length, width, and perimeter of the new rectangle.

0 points: The student shows little or no understanding of solving word problems involving the concepts of area.

MAT.03.ER.3.000NF.B.229 Claim 3

| | |
|--|---|
| Sample Item ID: | MAT.03.ER.3.000NF.B.229 |
| Grade: | 03 |
| Primary Claim: | Claim 3: Communicating Reasoning Students can clearly and precisely construct viable arguments to support their own reasoning and to critique the reasoning of others. |
| Secondary Claim(s): | Claim 1: Concepts and Procedures Students can explain and apply mathematical concepts and carry out mathematical procedures with precision and fluency. |
| Primary Content Domain: | Number and Operations—Fractions |
| Secondary Content Domain(s): | Geometry |
| Assessment Target(s): | 3 B: Construct, autonomously, chains of reasoning that will justify or refute propositions or conjectures. 1 F: Develop understandings of fractions as numbers. 1 K. Reason with shapes and their attributes. |
| Standard(s): | 3.NF.3, 3.G.2 |
| Mathematical Practice(s): | 3, 6 |
| DOK: | 3 |
| Item Type: | ER |
| Score Points: | 2 |
| Difficulty: | M |
| Key: | See Sample Top-Score Response. |
| Stimulus/Source: | |
| Target-Specific Attributes (e.g., Accessibility Issues): | |
| Notes: | Part of a PT set |

Rectangle F is divided into 4 equal areas, as shown.



Rectangle F

Part A

What fraction is represented by the shaded area of Rectangle F?



Rectangle G is divided into 4 equal areas, as shown.



Rectangle G

Part B

What fraction is represented by the shaded area of Rectangle G?

**Part C**

Is the shaded area of Rectangle F equal to the shaded area of Rectangle G? Explain your thinking. Use what you know about the **area** of Rectangle F and Rectangle G to explain.

Sample Top-Score Response:

Part A: $\frac{1}{4}$

Part B: $\frac{1}{4}$

Part C: The areas are different. Rectangle F and Rectangle G are not the same whole. Also, the area noted by the red-shaded area of Rectangle G is greater than the area of Rectangle F.

Scoring Rubric:

Responses to this item will receive 0–2 points, based on the following:

2 points: The student demonstrates partial understanding of explaining fractions as numbers and reasoning with shapes and their attributes to support their own reasoning by expressing the area of the shaded region of Rectangle F and Rectangle G each as $\frac{1}{4}$ the area of the given rectangle and giving a complete explanation about why the shaded areas of the two rectangles are not equal.

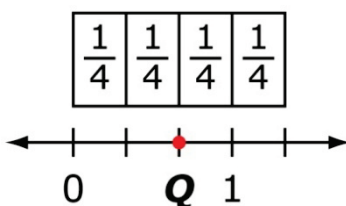
1 point: The student demonstrates limited understanding of explaining fractions as numbers and reasoning with shapes and their attributes to support their own reasoning by expressing the area of the shaded region of Rectangle F and Rectangle G each as $\frac{1}{4}$ the area of the given rectangle and giving a partial or incomplete explanation about why the shaded areas of the two rectangles are not equal.

0 points: The student shows little or no understanding of explaining fractions as numbers and reasoning with shapes and their attributes to support their own reasoning by not expressing the area of the shaded region of Rectangle F and Rectangle G each as $\frac{1}{4}$ the area of the given rectangle and not providing an explanation about why the shaded areas of the two rectangles are not equal. OR The student states that the areas of the two shaded regions are equal.

MAT.03.ER.3.000NF.E.216 Claim 3

| | |
|--|--|
| Sample Item ID: | MAT.03.ER.3.000NF.E.216 |
| Grade: | 03 |
| Primary Claim: | Claim 3: Communicating Reasoning Students can clearly and precisely construct viable arguments to support their own reasoning and to critique the reasoning of others. |
| Secondary Claim(s): | Claim 1: Concepts and Procedures Students can explain and apply mathematical concepts and carry out mathematical procedures with precision and fluency. |
| Primary Content Domain: | Number and Operations—Fractions |
| Secondary Content Domain(s): | |
| Assessment Target(s): | 3 E: Distinguish correct logic or reasoning from that which is flawed, and—if there is a flaw in the argument—explain what it is. 1 F: Develop understanding of fractions as numbers. |
| Standard(s): | 03.NF.2 |
| Mathematical Practice(s): | 1, 2, 4, 5 |
| DOK: | 3, 6 |
| Item Type: | ER |
| Score Points: | 2 |
| Difficulty: | L |
| Key: | See Sample Top-Score Response. |
| Stimulus/Source: | |
| Target-Specific Attributes (e.g., accessibility issues): | |
| Notes: | |

Eva thinks that Q shows $\frac{2}{4}$ on the number line. Eva labeled the number line with unit fractions to show how she determined her answer.



Is Eva's drawing correct? Explain your reasoning using words, numbers, and/or pictures.

Sample Top-Score Response:

Eva's drawing is not correct. The point that is represented on the number line is $\frac{2}{3}$.

$\frac{2}{4}$ would be represented on a number-line diagram by marking off 2 lengths, each of

length $\frac{1}{4}$ from 0. As shown, the endpoint would be $\frac{2}{3}$ because the intervals are in thirds.

Scoring Rubric:

Responses to this item will receive 0–2 points based on the following:

2 points: The student shows thorough communication of distinguishing correct reasoning from that which is flawed by giving a clear explanation using words, numbers, and/or pictures of fractions and their representation on the number line.

1 point: The student shows partial communication of distinguishing correct reasoning from that which is flawed by giving a partial or incomplete explanation that may not clearly explain fractions and their representation on the number line.

0 points: The student demonstrates little or no communication of distinguishing correct reasoning from that which is flawed on the number line and representation of the fraction.

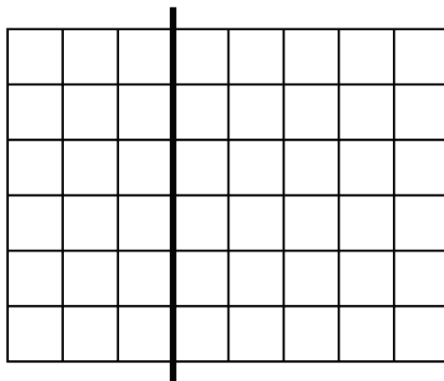
Grade 3 Mathematics Sample ER Item Claim 3



MAT.03.ER.3.000OA.B.235 Claim 3

| | |
|--|--|
| Sample Item ID: | MAT.03.ER.3.000OA.B.235 |
| Grade: | 03 |
| Primary Claim: | Claim 3: Communicating Reasoning Students can clearly and precisely construct viable arguments to support their own reasoning and to critique the reasoning of others. |
| Secondary Claim(s): | Claim 1: Concepts and Procedures Students can explain and apply mathematical concepts and carry out mathematical procedures with precision and fluency. |
| Primary Content Domain: | Operations and Algebraic Thinking |
| Secondary Content Domain(s): | |
| Assessment Target(s): | 3 B: Construct, autonomously, chains of reasoning that will justify or refute propositions or conjectures. 1 I: Understand concepts of area and relates area to multiplication and to addition. |
| Standard(s): | 3.OA.9 |
| Mathematical Practice(s): | 1, 2, 3, 4, 6, 7 |
| DOK: | 2 |
| Item Type: | ER |
| Score Points: | 2 |
| Difficulty: | M |
| Key: | See Sample Top-Score Response. |
| Stimulus/Source: | |
| Target-specific attributes (e.g., accessibility issues): | |
| Notes: | Part of PT set |

The large rectangle below is divided into 2 smaller rectangles by a thick black line.



Use words, numbers, and/or pictures to show that the sum of the areas of the two smaller rectangles is equal to the area of the large rectangle.

Sample Top-Score Response:

$6 \times 3 = 18$ and $6 \times 5 = 30$. If I count up all the squares in the large rectangle I get 48, which is $18 + 30$.

Scoring Rubric:

Responses to this item will receive 0–2 points, based on the following:

2 points: The student shows thorough understanding of patterns in arithmetic by relating multiplication to addition while finding areas of rectangles. The student clearly and precisely constructs viable arguments to support reasoning, completely explaining that the sum of the areas of the two smaller rectangles is equal to the area of the large rectangle.

- 1 point:** The student shows partial understanding of patterns in arithmetic by relating multiplication to addition while finding areas of rectangles. The student does not provide a complete explanation (i.e., shows the areas of the two smaller rectangles but does not relate it to the large rectangle; shows the area of the large rectangle but does not relate it to the sum of the areas of the two smaller rectangles; or makes an error in calculation).
- 0 points:** The student shows inconsistent or no understanding of explaining patterns in arithmetic by relating the three expressions of the areas of the rectangles and clearly and precisely constructing viable arguments to support reasoning.

MAT.03.PT.4.TOOLK.A.411 Claim 4

| | |
|---|--|
| Sample Item ID: | MAT.03.PT.4.TOOLK.A.411 |
| Title: | Classroom Tool Kits |
| Grade: | 03 |
| Primary Claim: | Claim 4: Modeling and Data Analysis Students can analyze complex, real-world scenarios and can construct and use mathematical models to interpret and solve problems. |
| Secondary Claim(s): | Claim 3: Communicating Reasoning Students can clearly and precisely construct viable arguments to support their own reasoning and to critique the reasoning of others. Claim 1: Concepts and Procedures Students can explain and apply mathematical concepts and interpret and carry out mathematical procedures with precision and fluency. |
| Primary Content Domain | Number and Operations |
| Secondary Content Domain(s): | Measurement and Data |
| Assessment Target(s): | 4 A: Apply mathematics to solve problems arising in everyday life, society, and the workplace. 4 D: Interpret results in the context of a situation. 3 A: Test propositions or conjectures with specific examples. 3 B: Construct, autonomously, chains of reasoning that will justify or refute propositions or conjectures. 1 D: Solve problems involving the four operations, and identify and explain patterns in arithmetic 1 E: Use place value understanding and properties of operations to perform multi-digit arithmetic. 1 H: Represent and interpret data. |
| Standard(s): | 3.OA.8, 3.NBT.3, 3.MD.3 |
| Mathematical Practice(s): | 1, 2, 3, 6, 7 |
| DOK: | 3 |
| Item Type: | PT |
| Score Points: | 12 |
| Difficulty: | M |
| How this task addresses the "sufficient evidence" for this claim: | Students are asked to gather and organize data, graph the data, and use the data to solve real-world scenarios. Students will use this information from graphs to justify a conclusion. |
| Target-Specific Attributes (e.g., accessibility issues): | |
| Stimulus/Source: | Custom Created List of Tools |
| Notes: | Multi-part performance task; requires some TE components as part of the task. |
| Task Overview: | Students collect and analyze data in order to determine total |

| | |
|---|--|
| | cost of school-wide tool kits in comparison to budgets. |
| Teacher preparation / Resource requirements: | Teacher creates survey for students to conduct and assists students in creating table/tally chart of survey results. |
| Teacher Responsibilities During Administration: | Monitor individual student work |
| Time Requirements: | 80-100 minutes |

Prework: Students are to conduct a survey of the top 5 out of 7 items to include in a math tool kit and to include in a science tool kit. Students are to hand out the survey (below) to each classroom teacher at their campus by either delivering the survey to the classroom or by placing the survey in the teacher's mailbox in the office. Teachers should be asked to return the survey within two days after receipt. Once all (or most) of the teacher surveys are returned, the class, with teacher assistance, will create a tally chart that shows the number of teachers that selected each of the 7 math tools and the number of teachers that selected each of the 7 science tools. An example of the tally chart for math tools is shown in *Part A*, and an example of the tally chart for science tools is shown in *Part B*. These charts must be completed prior to the start of Session 1.

Teacher Survey

Directions: For each tool kit, circle the top five tools, based on usefulness for the class, that you believe should be in each teacher's tool kit.

Please return your survey to _____ by _____.

| Math Tool Kit | Science Tool Kit |
|--------------------|------------------|
| Clock | Thermometers |
| Place Value Blocks | Beakers |
| Calculator | Safety Goggles |
| Pattern Blocks | Tape Measure |
| Fraction Set | Magnets |
| Coins | Magnifying Lens |
| Tangrams | Compass |

Tool Kits

Session 1

The teachers at your school have just completed the survey you sent to them about the tools they would like in a math and a science tool kit.

Part A

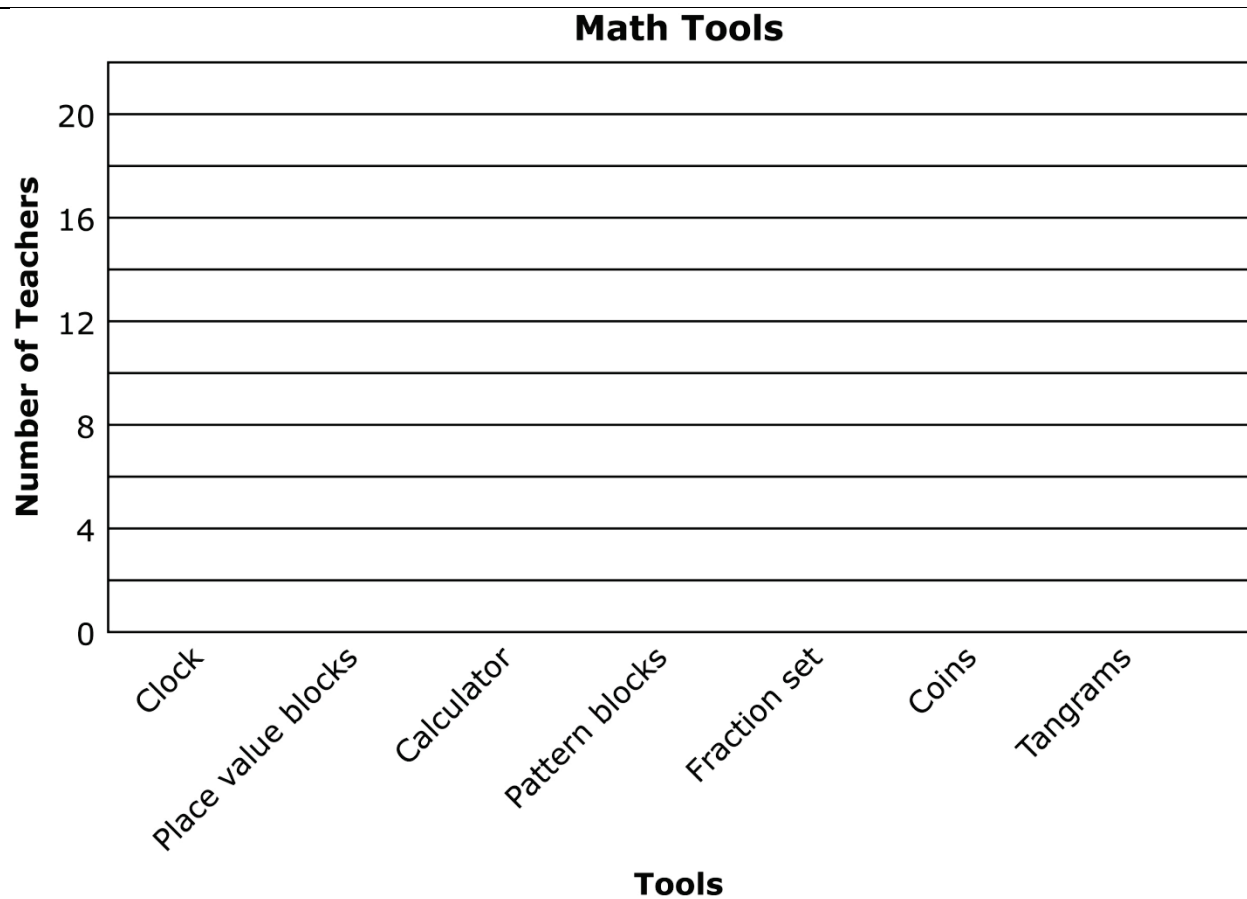
Use the Math Tools Survey Results to answer questions in *Part A* of this task.

Math Tools Survey Results

| Math Tools | Tally Marks |
|--------------------|-------------|
| Clock | |
| Place Value Blocks | |
| Calculator | |
| Pattern Block | |
| Fraction Set | |
| Coins | |
| Tangrams | |

[Note: This tally chart is blank. A completed chart, based on the survey results from your school, must be made available to all students in order to complete their task. Both of the charts (math and science) can be combined on one sheet of paper and distributed to students prior to the start of Session 1. If too few results are obtained, please proportionally increase the numbers so it appears that at least 10 teachers responded.]

Refer to the math tools tally chart to complete the bar graph below.



Use the information from your bar graph to answer the questions below.

1. Which math tool received the most number of votes?

2. Which math tool received the least number of votes?

3. What is the difference between the math tool that received the most number of votes and the math tool that received the least number of votes?

Part B

Use the Science Tools Survey Results to answer questions in *Part B* of this task.

Science Tools Survey Results


| Science Tools | Tally Marks |
|-----------------|-------------|
| Thermometers | |
| Beakers | |
| Safety Goggles | |
| Tape Measure | |
| Magnets | |
| Magnifying Lens | |
| Compass | |

[Note: This tally chart is blank. A completed chart, based on the survey results from your school, must be made available to all students in order to complete their task. Both of the charts (math and science) can be combined on one sheet of paper and distributed to students prior to the start of Session 1.]

Refer to the science tools tally chart to complete the picture graph below.

Science Tools


| | |
|-----------------|--|
| Thermometers | |
| Beakers | |
| Safety Goggles | |
| Tape Measure | |
| Magnets | |
| Magnifying Lens | |
| Compass | |


Each  means 2 teachers

Use the information from your picture graph to answer the questions below.

4. Which two tools received the most number of votes?

5. What is the total number of votes these two tools received?

The key for the picture graph has changed to:
"Each  means 4 teachers".

6. Using the new key, how many  s are needed to fill in the chart for the tool selected by the greatest number of teachers?

| |
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End of Session 1

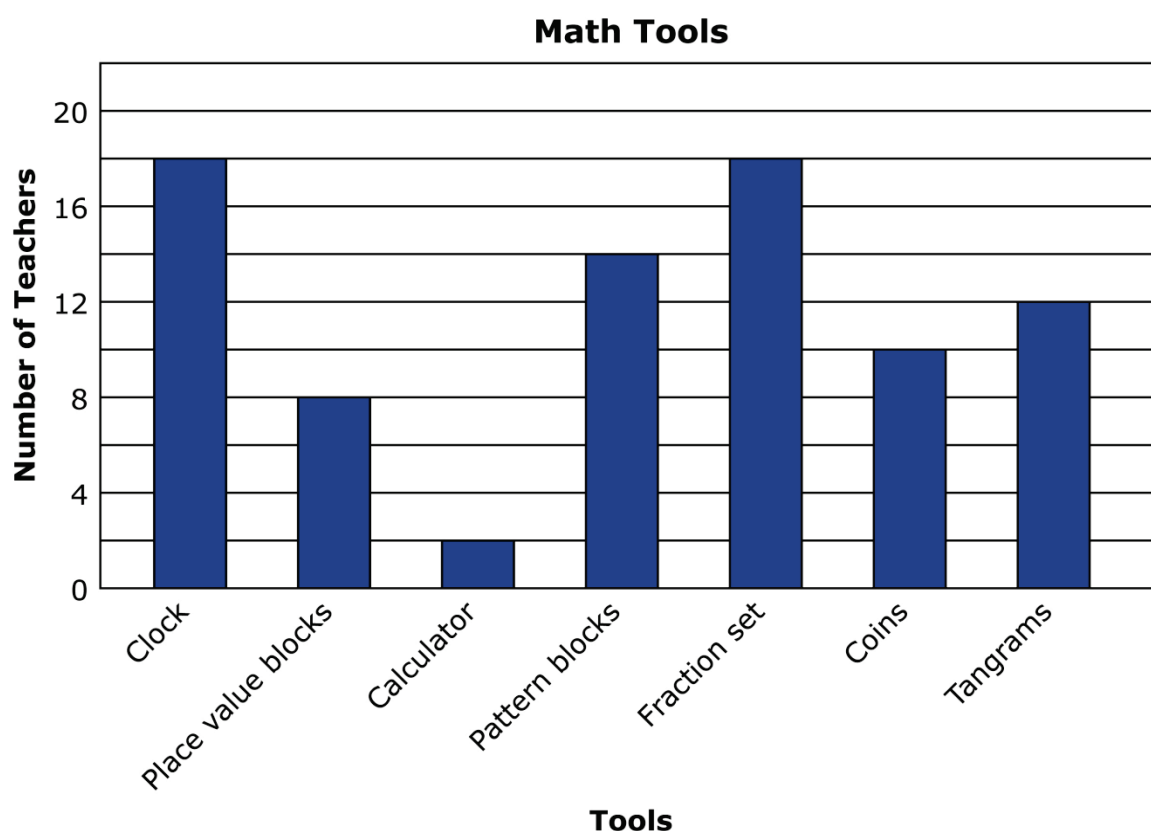
You will not be able to go back to **Part A** or **Part B** after this session.

Session 2

In Session 1, you worked with the survey results from your school. In this session, you will work with the results from Clearwater Elementary School.

Part C

Below is a bar graph that shows the results of the survey from Clearwater Elementary School.



Using this bar graph, select the five math tools in the table below that received the most number of votes.

[TE interaction: As a student clicks on a tool, the tool will be highlighted.]

Math Tools

| Tools | Costs |
|--------------------|-------|
| Clock | \$4 |
| Place Value Blocks | \$10 |
| Calculator | \$8 |
| Pattern Blocks | \$4 |
| Fraction Set | \$2 |
| Coins | \$2 |
| Tangrams | \$1 |


























A math tool kit contains 10 each of the top 5 tools.

What is the total cost of 1 math tool kit?

\$

Below is a picture graph that shows the results of the survey from Clearwater Elementary School.

Science Tools

| | |
|-----------------|--|
| Thermometers |      |
| Beakers |  |
| Safety Goggles |       |
| Tape Measure |   |
| Magnets |     |
| Magnifying Lens |     |
| Compass |    |

Each  means 2 teachers

Using this graph, select the five science tools in the table below that received the most number of votes.

[TE interaction: As a student clicks on a tool, the tool will be highlighted.]

Science Tools

| Tools | Costs |
|-----------------|-------------------------|
| Thermometers | \$2 |
| Beakers | \$4 |
| Safety Goggles | \$6 |
| Tape Measure | \$4 for 5 tape measures |
| Magnets | \$1 |
| Magnifying Lens | \$1 |
| Compass | \$2 |

A science tool kit contains 10 each of the top 5 tools.

What is the total cost of 1 science tool kit?

\$

Part D

Look at the costs above for each tool kit. What is the total cost of 4 math tool kits and 4 science tool kits?

\$

The principal at Clearwater Elementary can spend up to \$750 to purchase 4 math tool kits and 4 science tool kits.

Is \$750 enough money to purchase 4 math tool kits and 4 science tool kits for the school? Click on your answer.

Yes

No

[Technology interaction: If the student clicks "Yes", the next question for the student will be the following: "You responded that the principal has enough money to purchase 4 math tool kits and 4 science tool kits. How much money is left over after he purchases the tool kits? Be sure to show the work needed to support your answer."]

[Technology interaction: If the student clicks "No", the next question for the student will be the following: "You responded that the principal does not have enough money to purchase 4 math tool kits and 4 science tool kits. How much more money does he need to purchase the tool kits? Be sure to show the work needed to support your answer."]

End of Session 2

*Sample Top-Score Response:***Part A**

Students should have created a bar graph to represent the information from the math tools survey results chart.

1. This answer should match the highest bar on the graph the student created.
2. This answer should match the lowest bar on the graph the student created.
3. This answer should show that students understand they need to compare the most and least math tools to solve for a difference, according to the graph they created.

Part B

Students should have created a picture graph to represent the information from the science tools survey results chart.

4. This answer should name the top two science tools according to the graph the students created.
5. This answer should show the sum of the top two science tools according to the graph the students created.
6. This answer should show that students divided the value of the top science tool by 4 and identified the number of blocks and partial blocks required. The answer may require partial blocks.

Part C

The student should select *clock*, *pattern blocks*, *fraction set*, *coins*, and *tangrams*.

Cost of 1 math tool kit \$130

The student should select *thermometers*, *safety goggles*, *magnets*, *magnifying lens*, and *compass*.

Cost of 1 science tool kit \$120

Part D

The total cost of 4 math tool kits and 4 science tool kits is \$1000.

Students should click on *no*.

Below is an explanation using numbers:

$$130 + 130 + 130 + 130 = 520$$

$$120 + 120 + 120 + 120 = 480$$

$$520 + 480 = 1000$$

$$1000 > 750$$

Below is an explanation using words:

I added 130 four times to get a total for the 4 math kits. That total is 520. Then I added 120 four times to get a total for the 4 science kits. That total is 480. I added 520 and 480 to find the total of 4 math kits and 4 science kits. That total is 1000. I know that 1000 is greater than 750, so I know the principal did not have enough money in the budget.

OR

I multiplied 130×4 to find the total of 4 math kits. That total is 520. Then I multiplied 120×4 to find the total of 4 science kits. That total is 480. I added 520 and 480 and got a total of 1000. I know that 1000 is greater than 750, so I know the principal did not have enough money in the budget.

The principal needs \$250 more.

Scoring Rubric:

Responses to this item will receive 0–11 points, based on the following:

Part A

3 points: The student demonstrates thorough understanding of how to draw a bar graph and use the information to answer questions about the graph. The student draws the correct graph using the information provided and answers all questions correctly.

2 points: The student demonstrates partial understanding of how to draw a bar graph and use the information to answer questions about the graph. The student draws the correct graph and answers one or two questions correctly, but not all three. **OR** The student makes an error in the graph, but answers the questions according to the error made in the graph.

1 point: The student demonstrates limited understanding of how to draw a bar graph and use the information to answer questions about the graph. The student draws the correct graph but does not answer the questions correctly or makes more than one error in the graph and completes one or two questions correctly, based on the error made in the graph.

0 points: The student demonstrates inconsistent or no understanding of how to draw a bar graph and use the information to answer questions about the graph.

Part B

4 points: The student demonstrates thorough understanding of how to draw a picture graph and use the information to answer questions about the graph. The student draws the correct graph using the information provided and answers all questions correctly.

3 points: The student demonstrates good understanding of how to draw a picture graph and use the information to answer questions about the graph. The student draws the correct graph and answers one of the two questions correctly.

2 points: The student demonstrates partial understanding of how to draw a picture graph and use the information to answer questions about the graph. The student draws the correct graph, but is unable to answer either question correctly. **OR** The student does not take into account the scale of 2 teachers per box, but answers the questions according to the error made in the scale.

1 point: The student demonstrates limited understanding of how to draw a picture graph and use the information to answer questions about the graph. The response contains several errors, but some understanding is shown (e.g., most of the graph is correct, answers match incorrect graph, etc.).

0 points: The student demonstrates inconsistent or no understanding of how to draw a picture graph and use the information to answer questions about the graph.

Part C

2 points: The student demonstrates understanding of how to use a bar graph and picture graph to answer questions about the graphs and how to use the four operations to calculate the total cost of a tool kit. The student correctly identifies the top-five tools for both the math tool kit and science tool kit. The student also correctly calculates the cost of one math tool kit and one science tool kit.

1 point: The student demonstrates partial understanding of how to use a bar graph and picture graph to answer questions about the graphs and how to use the four operations to calculate the total cost of a tool kit. The student correctly identifies the top-five tools for either the math tool kit or science tool kit. The student also correctly calculates the cost of either one math tool kit or one science tool kit.

0 points: The student demonstrates inconsistent or no understanding of how to use a bar graph and picture graph to answer questions about the graphs and how to use the four operations to calculate the total cost of a tool kit.

Part D

3 points: The student demonstrates thorough understanding of how to use the four operations to calculate the total for the required number of tool kits, determine whether the principal has sufficient money and justifies that decision, and to determine how much more money the principal requires.

2 points: The student demonstrates partial understanding of how to use the four operations to calculate the total for the required number of tool kits, determine whether the principal has sufficient money and justifies that decision, and to determine how much more money the principal requires. The student calculates the correct total cost and makes an incorrect judgment. **OR** The student calculates the incorrect total cost, makes a judgment based on the incorrect cost, and provides sufficient justification.

1 point: The student demonstrates limited understanding of how to use the four operations to calculate the total for the required number of tool kits, determine whether the principal has sufficient money and justifies that decision, and to determine how much more money the principal requires. The student calculates the incorrect total cost and provides insufficient justification.

0 points: The student demonstrates inconsistent or no understanding of how to use the four operations to calculate the total cost for the required number of tool kits.