

Mathematical Process Standards

1A	apply mathematics to problems arising in everyday life, society, and the workplace;
1B	use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution, and evaluating the problem-solving process and the reasonableness of the solution;
1C	select tools, including real objects, manipulatives, paper/pencil, and technology as appropriate, and techniques, including mental math, estimation, and number sense as appropriate, to solve problems;
1D	communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate;
1E	create and use representations to organize, record, and communicate mathematical ideas;
1F	analyze mathematical relationships to connect and communicate mathematical ideas; and
1G	display, explain, and justify mathematical ideas and arguments using precise mathematical language in written or oral communication

Number and Operations (Whole Numbers and Place Value)

2A★	compose and decompose numbers up to 100,000 as a sum of so many ten thousands, so many thousands, so many hundreds, so many tens, and so many ones using objects, pictorial models, and numbers, including expanded notation as appropriate;
2B	describe the mathematical relationships found in the base-10 place value system through the hundred thousands place;
2C	represent a number on a number line as being between two consecutive multiples of 10; 100; 1,000; or 10,000 and use words to describe relative size of numbers in order to round whole numbers; and
2D★	compare and order whole numbers up to 100,000 and represent comparisons using the symbols $>$, $<$, or $=$.

Number and Operations (Fractions)

3A	represent fractions greater than zero and less than or equal to one with denominators of 2, 3, 4, 6, and 8 using concrete objects and pictorial models, including strip diagrams and number lines;
3B	determine the corresponding fraction greater than zero and less than or equal to one with denominators of 2, 3, 4, 6, and 8 given a specified point on a number line;
3C	explain that the unit fraction $1/b$ represents the quantity formed by one part of a whole that has been partitioned into b equal parts where b is a non-zero whole number;
3D	compose and decompose a fraction a/b with a numerator greater than zero and less than or equal to b as a sum of parts $1/b$;
3E	solve problems involving partitioning an object or a set of objects among two or more recipients using pictorial representations of fractions with denominators of 2, 3, 4, 6, and 8;
3F★	represent equivalent fractions with denominators of 2, 3, 4, 6, and 8 using a variety of objects and pictorial models, including number lines;
3G	explain that two fractions are equivalent if and only if they are both represented by the same point on the number line or represent the same portion of a same size whole for an area model; and
3H★	compare two fractions having the same numerator or denominator in problems by reasoning about their sizes and justifying the conclusion using symbols, words, objects, and pictorial models.

Number and Operations (Computation/Coins and Bills)

4A★	solve with fluency one-step and two-step problems involving addition and subtraction within 1,000 using strategies based on place value, properties of operations, and the relationship between addition and subtraction;
4B	round to the nearest 10 or 100 or use compatible numbers to estimate solutions to addition and subtraction problems;
4C	determine the value of a collection of coins and bills;
4D	determine the total number of objects when equally-sized groups of objects are combined or arranged in arrays up to 10 by 10;
4E	represent multiplication facts by using a variety of approaches such as repeated addition, equal-sized groups, arrays, area models, equal jumps on a number line, and skip counting;
4F	recall facts to multiply up to 10 by 10 with automaticity and recall the corresponding division facts;

4G	use strategies and algorithms, including the standard algorithm, to multiply a two-digit number by a one-digit number. Strategies may include mental math, partial products, and the commutative, associative, and distributive properties;
4H	determine the number of objects in each group when a set of objects is partitioned into equal shares or a set of objects is shared equally;
4I	determine if a number is even or odd using divisibility rules;
4J	determine a quotient using the relationship between multiplication and division; and
4K★	solve one-step and two-step problems involving multiplication and division within 100 using strategies based on objects; pictorial models, including arrays, area models, and equal groups; properties of operations; or recall of facts.

Algebraic Reasoning

5A★	represent one- and two-step problems involving addition and subtraction of whole numbers to 1,000 using pictorial models, number lines, and equations;
5B★	represent and solve one- and two-step multiplication and division problems within 100 using arrays, strip diagrams, and equations;
5C	describe a multiplication expression as a comparison such as 3×24 represents 3 times as much as 24;
5D	determine the unknown whole number in a multiplication or division equation relating three whole numbers when the unknown is either a missing factor or product; and
5E★	represent real-world relationships using number pairs in a table and verbal descriptions.

Geometry and Measurement (Figures)

6A★	classify and sort two- and three-dimensional figures, including cones, cylinders, spheres, triangular and rectangular prisms, and cubes, based on attributes using formal geometric language;
6B	use attributes to recognize rhombuses, parallelograms, trapezoids, rectangles, and squares as examples of quadrilaterals and draw examples of quadrilaterals that do not belong to any of these subcategories;
6C★	determine the area of rectangles with whole number side lengths in problems using multiplication related to the number of rows times the number of unit squares in each row;
6D	decompose composite figures formed by rectangles into non-overlapping rectangles to determine the area of the original figure using the additive property of area; and
6E	decompose two congruent two-dimensional figures into parts with equal areas and express the area of each part as a unit fraction of the whole and recognize that equal shares of identical wholes need not have the same shape.

Geometry and Measurement (Measurement)

7A	represent fractions of halves, fourths, and eighths as distances from zero on a number line;
7B★	determine the perimeter of a polygon or a missing length when given perimeter and remaining side lengths in problems;
7C	determine the solutions to problems involving addition and subtraction of time intervals in minutes using pictorial models or tools such as a 15-minute event plus a 30-minute event equals 45 minutes;
7D	determine when it is appropriate to use measurements of liquid volume (capacity) or weight; and
7E	determine liquid volume (capacity) or weight using appropriate units and tools.

Data Analysis

8A★	summarize a data set with multiple categories using a frequency table, dot plot, pictograph, or bar graph with scaled intervals; and
8B	solve one- and two-step problems using categorical data represented with a frequency table, dot plot, pictograph, or bar graph with scaled intervals.

Personal Financial Literacy

9A	explain the connection between human capital/labor and income;
9B	describe the relationship between the availability or scarcity of resources and how that impacts cost;
9D	explain that credit is used when wants or needs exceed the ability to pay and that it is the borrower's responsibility to pay it back to the lender, usually with interest;
9E	list reasons to save and explain the benefit of a savings plan, including for college; and

Blackout is the goal! After completing and checking a page of your *Countdown*, shade the oval of each question you answer correctly. The ovals that are not shaded show you and your teacher which standards you need to work on. Shade carefully, accurately, and neatly!

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Series 5

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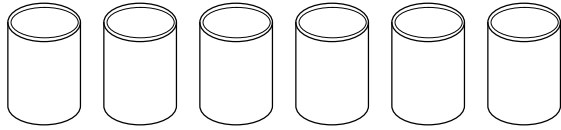
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1 The picture represents the plastic containers that three friends recycled. Each friend recycled the same number of containers.

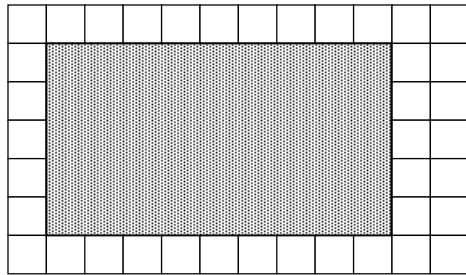


What fraction of the containers did each friend recycle?

- A $\frac{1}{6}$ B $\frac{2}{3}$ C $\frac{2}{6}$ D $\frac{3}{6}$

3E

2 The shaded figure on the grid represents a rectangular rug in a living room.



= 1 square foot

What is the area of the rug in square feet?

- F 84 G 45 H 28 J 63

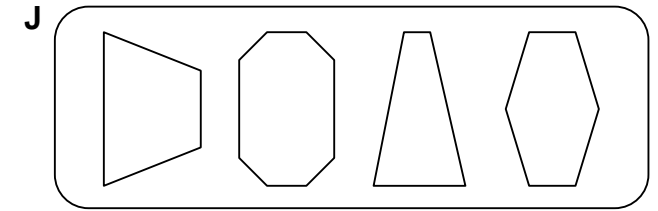
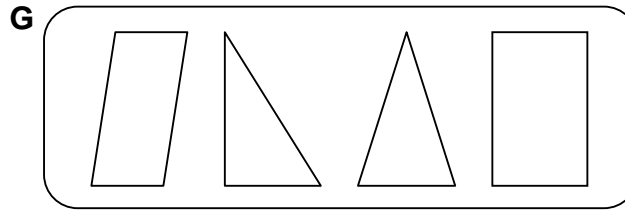
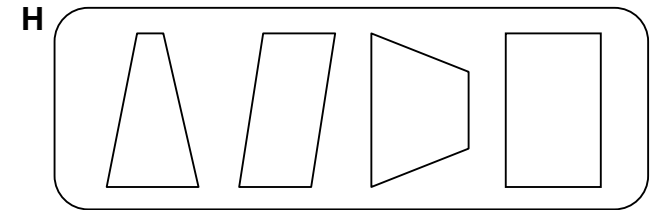
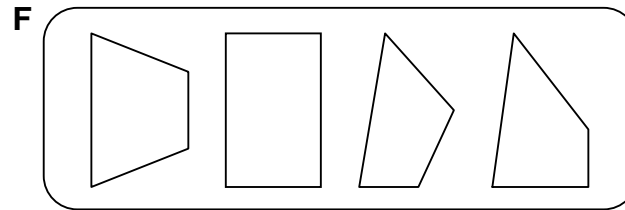
6C

3 Kionna wrote the equation $\square \times 8 = 64$. What number goes in the \square to make Kionna's equation true?

- A 8 B 6 C 7 D 9

5D

4 In which set do all the figures appear to be either parallelograms or trapezoids?



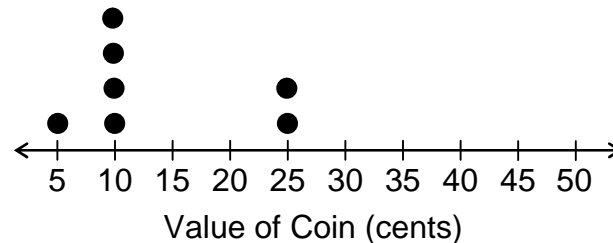
6B



5 Asher has the coins shown here. He is making the dot plot shown to display the number and value of the coins he has.



Asher's Coins



Which two data points does Asher still need to add to the dot plot?

Place a checkmark next to the correct answer from each drop-down menu to complete the sentence.

Asher still needs to add one dot to cents and one dot to cents.

5
 10

50
 25

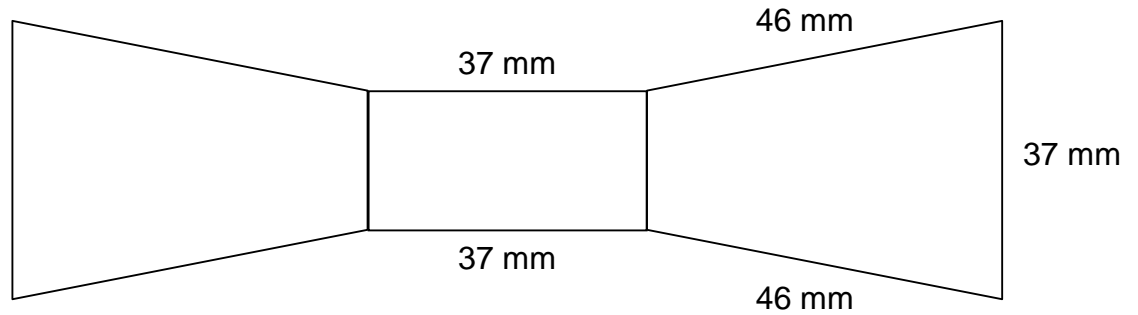
8A

1 Chantel collected 68 species of insects on Friday.
 ♦ On Saturday she collected 23 more insects.
 ♦ On Sunday she released 45 insects.
 Which set of equations can be used to find the number of insects Chantel had after she released the insects on Sunday?

- A** $68 + 23 = 91$ **C** $45 - 23 = 22$
 $91 + 45 = \square$ $45 + 22 = \square$
- B** $68 - 23 = 45$ **D** $68 + 23 = 91$
 $45 - 45 = \square$ $91 - 45 = \square$

5A

3 Arturo drew a bowtie using a rectangle and two congruent trapezoids.



What is the perimeter of the drawing of the bowtie?

- A** 406 mm **B** 203 mm **C** 332 mm **D** 296 mm

7B

2 The runners in squad B always run 3 times as many laps around the track as the runners in squad A.
 Which table shows this relationship?

F

Squad A Laps Run	Squad B Laps Run
4	12
8	24
12	36
16	48

H

Squad A Laps Run	Squad B Laps Run
4	7
8	11
12	15
16	19

G

Squad A Laps Run	Squad B Laps Run
4	12
8	16
12	20
16	24

J

Squad A Laps Run	Squad B Laps Run
4	8
8	16
12	24
16	32

5E

4 There are eighty-six third-graders at Harper Elementary. Each third-grader has 7 folders, 3 binders, and 1 supply box. How many folders do the third-graders have altogether?

Enter your answer in the box.

← → ↶ ↷ ✖

1	2	3
4	5	6
7	8	9
0	$\frac{\square}{\square}$	

4G

1 Hanan bakes 2 batches of papadums. There are 16 papadums in each batch. Then Hanan places an equal number of papadums in 4 bags. Which expression can be used to find the number of papadums in each bag?

- A $2 \times 16 \times 4$ C $2 + 16 - 4$
- B $2 + 16 \div 4$ D $2 \times 16 \div 4$

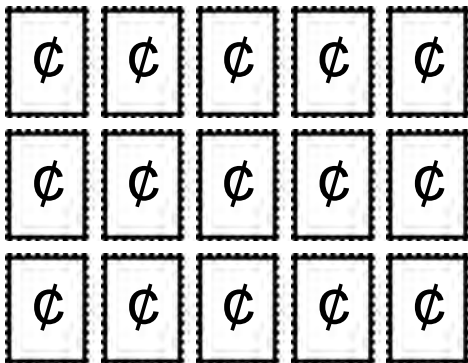
5B

2 Darika has 2 boxes of chocolate donuts and 3 boxes of glazed donuts. Each box contains 12 donuts. How many donuts does Darika have?

- F 50 G 36 H 60 J 17

4K

3 There are 15 stamps on each page of a stamp booklet. One page of the booklet is shown.



How many stamps are on 5 pages of the booklet?

- A 20 B 75 C 55 D 105

4D

4 Two rectangular floors are completely covered with 1-foot square tiles.

- ♦ Floor 1 is covered with 5 rows of 7 tiles each.
- ♦ Floor 2 is covered with 4 rows of 8 tiles each.

What is the area of each floor?

Move the correct answer to each box.

Not all answers will be used.

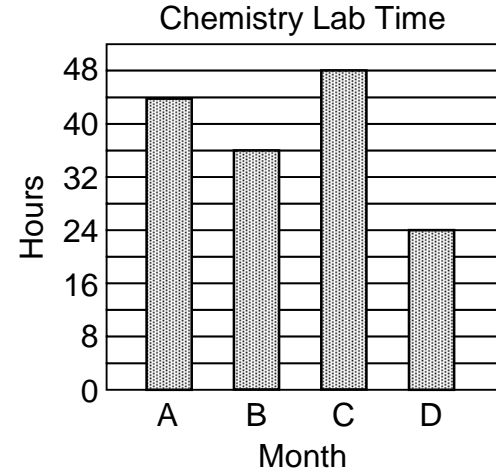
- 30 32 36 35 40

Area of floor 1: square feet

Area of floor 2: square feet

6C

6 The graph shows the number of hours Ms. Pham worked in a chemistry lab in 6 months.



Complete the table so that it represents the data in the bar graph.

Move the correct answer to each box. Each answer may be used more than once. Not all answers will be used.

- 16 20 24 28 32
- 36 40 44 48 50

Month	Hours
A	<input type="text"/>
B	<input type="text"/>
C	<input type="text"/>
D	<input type="text"/>

8A


5 The table shows the number of people that visited an amusement park during 4 months.

Month	Visits
March	36,428
April	35,599
May	35,400
June	36,612

Which comparison is true?

- F April visits > March visits
- G May visits = April visits
- H June visits > March visits
- J March visits < May visits

2D

 **1** Teresa wants to read a 400-page book in three weeks.

- ♦ She read 125 pages the first week.
- ♦ She read 135 pages the second week.

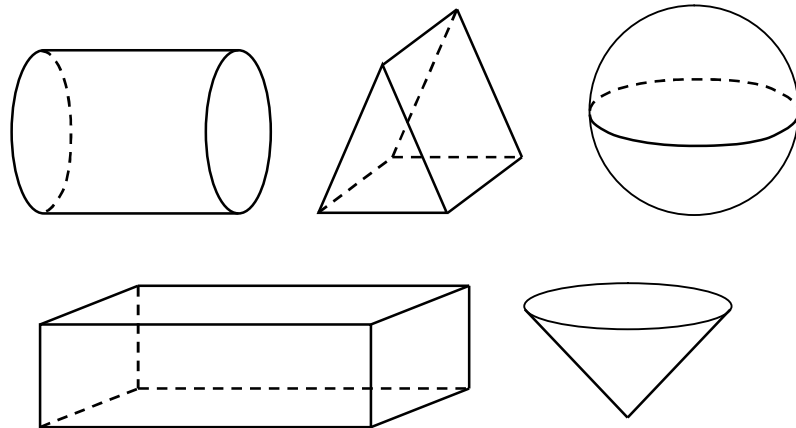
How many pages does Teresa need to read in the third week to finish the book?

Enter your answer in the box.

←	→	↺
1	2	3
4	5	6
7	8	9
0	□	

4A

2 Tycho drew the figures below.



Which list best describes the figures?


- A** 1 cone, 1 cube, 1 cylinder, 1 sphere, 1 prism
- B** 1 sphere, 2 prisms, 1 cylinder, 1 cone
- C** 1 pyramid, 1 cone, 1 box, 1 prism, 1 cylinder
- D** 1 box, 1 ball, 1 cone, 1 prism, 1 tube

6A

3 The owner of a restaurant borrowed \$6,000 from a bank in order to buy a new oven. A year later he paid \$6,550 back to the bank. Why did the owner of the restaurant pay the bank \$550 more than he borrowed?

- F** The \$550 was a gift to the bank.
- G** The \$550 was the sales tax he had to pay on the oven.
- H** The \$550 was the interest he had to pay for the loan.
- J** The owner must have forgotten that he only borrowed \$6,000.

9D

 **4** Mr. Ellis is a dentist. Which factors most likely affect the amount of money he earns each month?

Place a checkmark next to each correct answer. Select **TWO** answers.

- The number of other dentists he knows
- The number of patients he helps
- The number of dental tools he owns
- The number of children he has
- The amount of money he charges each patient

9A

5 Yuki has 42 pebbles. She wants to put the pebbles in the pockets of her jacket. She wants an equal number in each pocket. If her jacket has 6 pockets, how many pebbles should she put in each pocket?

- A** 36, because $42 - 6 = 36$
- B** 48, because $6 + 42 = 48$
- C** 252, because $6 \times 42 = 252$
- D** 7, because $6 \times 7 = 42$

4J

1 Vitus has two books. The first book has 274 pages. The second book has 168 pages. How many pages do the two books have?

Enter your answer in the box.

←	→	↺
1	2	3
4	5	6
7	8	9
0	□/□	

4A

3 A package contains some beads and strings. There are 7 strings in the package. The expression 9×7 represents the number of beads in the package. Which statement is true?

- F** There are 9 times as many strings as beads in the package.
- G** There are 9 more beads than strings in the package.
- H** There are 9 times as many beads as strings in the package.
- J** There are 9 more strings than beads in the package.

5C

5 The number shown here is written in expanded form.

$$40,000 + 700 + 5$$

How is this number written in standard form?

- F** 40,705
- G** 47,005
- H** 40,075
- J** 4,705

2A

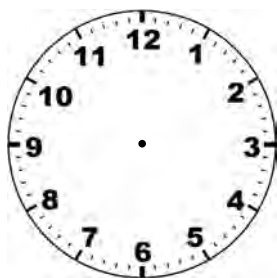
6 A train traveled 788 miles on Monday. It traveled 431 miles on Tuesday. About how many more miles did the train travel on Monday than Tuesday?

- A** 1,000, because $1,000 - 0 = 1,000$
- B** 380, because $800 - 430 = 370$
- C** 390, because $790 - 400 = 390$
- D** 360, because $790 - 430 = 360$

4B

2 Renato studied three subjects.

- ◆ History for 20 minutes
- ◆ Science for 25 minutes
- ◆ Mathematics for 35 minutes

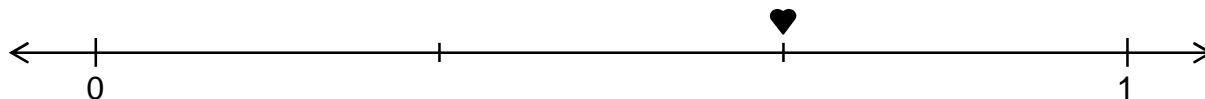


How long did Renato study?

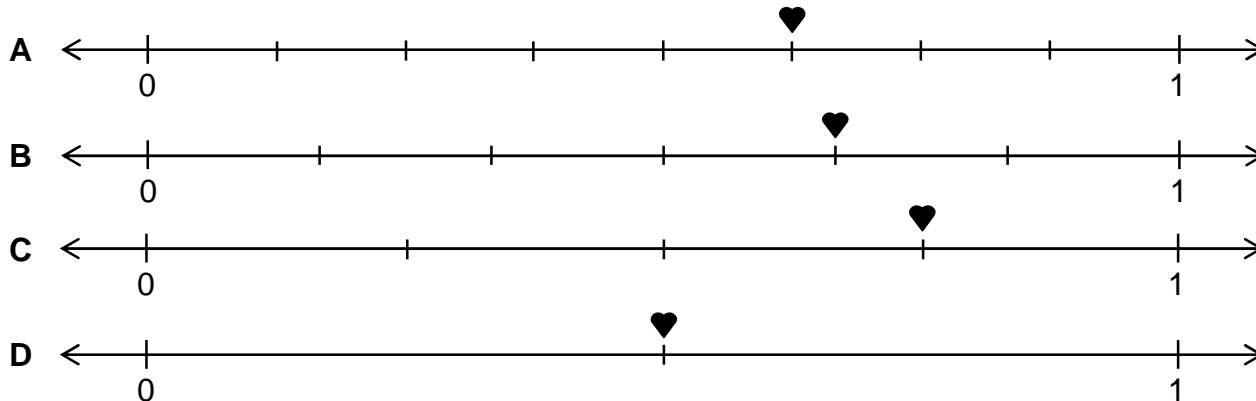
- A** 1 hour 15 minutes
- B** 70 minutes
- C** 1 hour 20 minutes
- D** 2 hours

7C

4 Brandon drew a heart to mark the fraction $\frac{2}{3}$ on this number line.



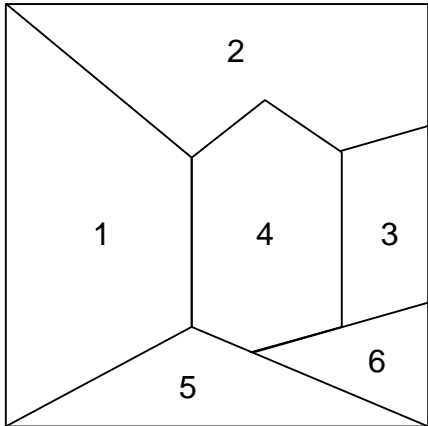
Which number line is marked to show a fraction equivalent to $\frac{2}{3}$?



3F

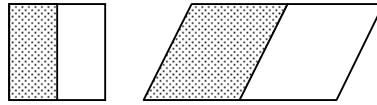
1 A square is split into 6 figures as shown below. Which figures are quadrilaterals?

Select **TWO** correct answers.



6A

3 Shing used a pencil to shade one half of a square and one half of a parallelogram.

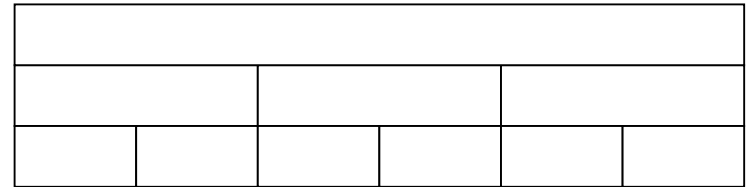


Do Shing's models show that one half is equivalent to one half?

- F** Yes, because both figures are quadrilaterals.
- G** Yes, because both figures are shaded with the same pencil.
- H** No, because the square is more than one half shaded.
- J** No, because the areas of the figures are not equal.

3G

4 Fraction strips are shown here.



Which comparison and explanation are true?

- A** $\frac{2}{6} < \frac{2}{3}$, because sixths are larger than thirds
- B** $\frac{2}{6} < \frac{2}{3}$, because thirds are larger than sixths
- C** $\frac{2}{6} > \frac{2}{3}$, because sixths are larger than thirds
- D** $\frac{2}{6} > \frac{2}{3}$, because thirds are larger than sixths

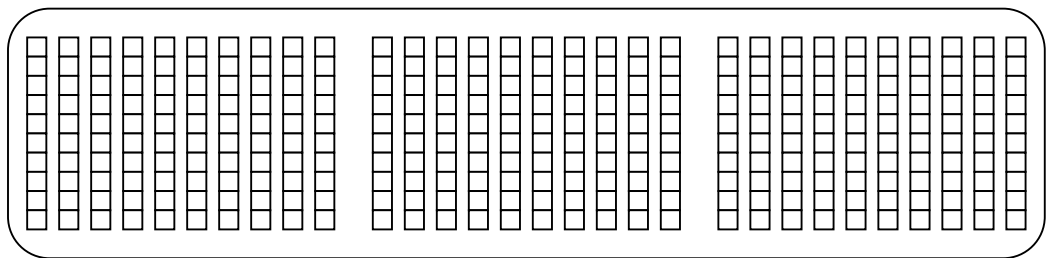
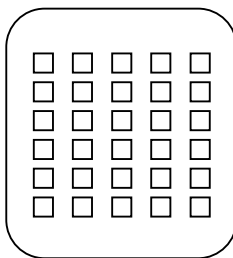
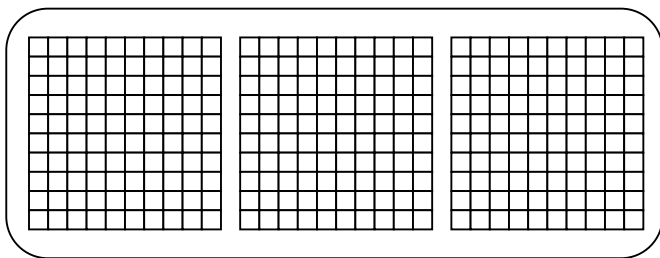
3H

2 Three students created models to represent numbers.

Tyree's Model

Ian's Model

Dawn's Model



Which models represent the same number?

- A** Ian's model and Dawn's model, because 30 ones is equivalent to 30 tens.
- B** Tyree's model and Dawn's model, because 3 hundreds is equivalent to 30 tens.
- C** Ian's model and Tyree's model, because 30 ones is equivalent to 3 hundreds.
- D** None of the models represent the same number.

2B