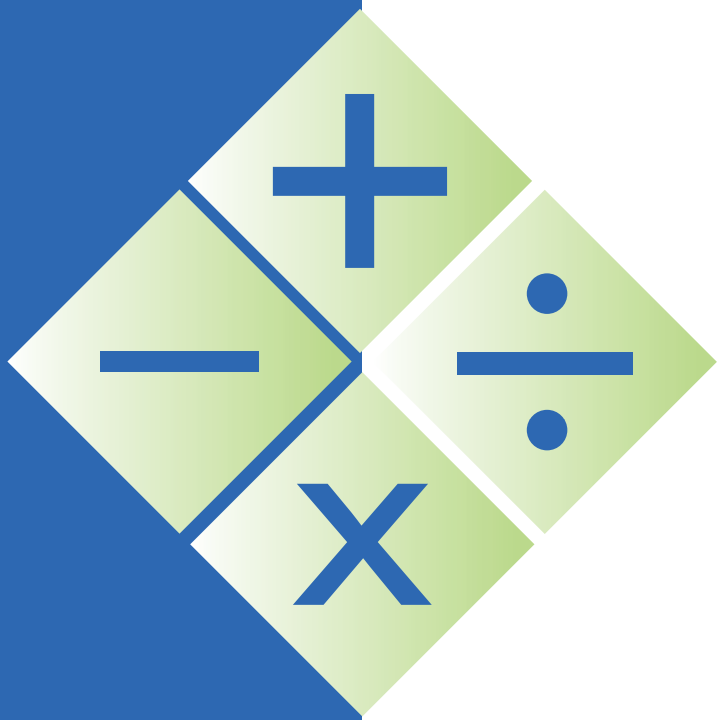
Mathematics

Forward Exam Practice Test Grade 3



Wisconsin Forward Exam

WISCONSIN DEPARTMENT OF Public Instruction

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MATHEMATICS ITEMS—SESSION 1

1. Kiana has 3 buckets. She has 33 apples to put into the buckets. She will put the same number of apples into each bucket. Which equation shows a way Kiana can find how many apples to put into each bucket?

A. $3 + \square = 33$

B. $33 - \square = 3$

C. $3 \times \square = 33$

D. $3 \div \square = 33$

2. Tami plots a point at $\frac{1}{3}$ on a number line. Use the numbers below the blank lines to complete the statement.

Tami's point is between _____ on the number line and represents 1 of _____ equal parts of the whole.

0 and 1	3
1 and 3	4

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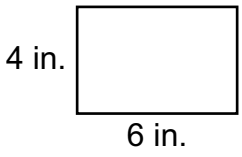
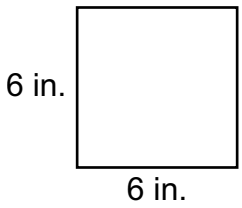
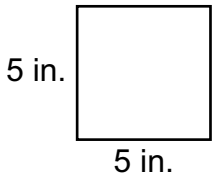
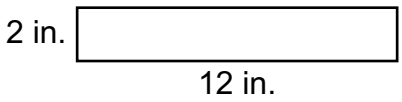
3. Select the **two** rectangles that have an area of 24 square inches.

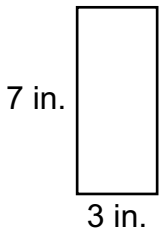
Select **two** options.

A. 

B. 

C. 

D. 

E. 

4. Miss Miller's classroom has 6 tables. There are 60 crayons at each table. What is the total number of crayons for all the tables in Miss Miller's classroom?

Go on to the next page.

5. Erin collects stickers. In which situation is the number of Erin's stickers equal to the expression 15 × 5?

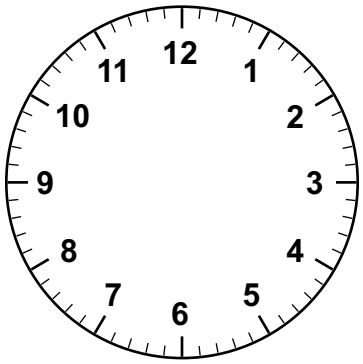
A. Erin has 15 stickers in each of 5 piles.

B. Erin has 15 stickers and buys 5 more stickers.

C. Erin has 15 stickers and gives 5 of them to a friend.

D. Erin has 15 stickers and separates them into 5 piles.

6. Ginny arrives at soccer practice at 8:12. Draw hands on the clock to show the time Ginny arrives at soccer practice.



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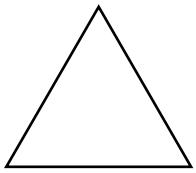
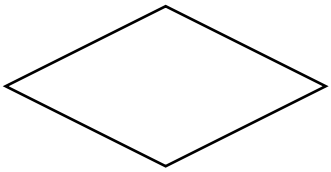
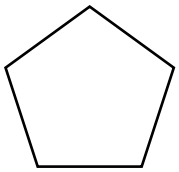
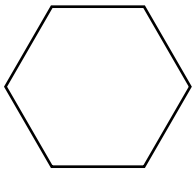
7. Which shape is a quadrilateral?

A. 

B. 

C. 

D. 

8. A number pattern is shown.

3, 6, 9, 12, . . .

Which statement about the pattern is true?

A. The rule for the pattern is to add 3.

B. The rule for the pattern is to multiply by 3.

C. Every number in the pattern is an odd number.

D. Every number in the pattern is an even number.

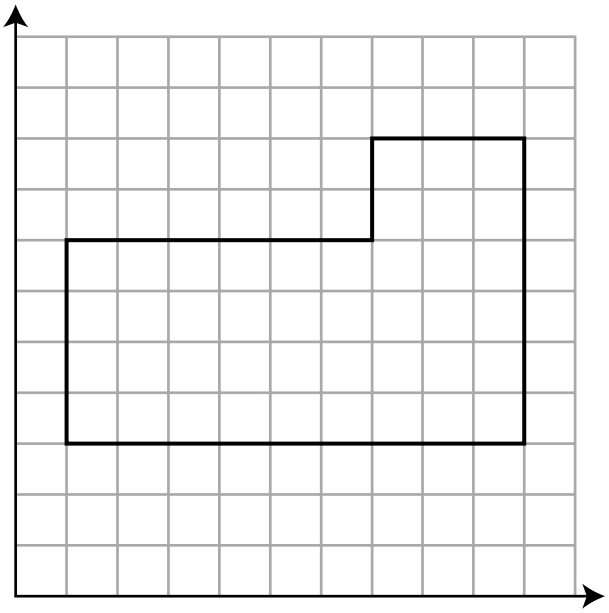
Go on to the next page.

9. Henry draws the shape of his classroom floor on a grid. He partitions the shape into two rectangles. He then writes the expression shown to find the area of the shape, in square units.

$$(4 \times 6) + (6 \times 3)$$

Draw a line on the grid to partition the shape into Henry's two rectangles.

Henry's Classroom Floor



10. The expression shown is equivalent to 4×12.

$$(4 \times \square) + (4 \times \square)$$

Which expression is equivalent to 4×12?

A. $(4 \times 2) + (4 \times 6)$

B. $(4 \times 3) + (4 \times 4)$

C. $(4 \times 2) + (4 \times 10)$

D. $(4 \times 1) + (4 \times 12)$

Go on to the next page.

11. Which statement correctly explains the comparison between the fractions $\frac{2}{3}$ and $\frac{2}{6}$?

A. Since both numerators are 2, $\frac{2}{3} = \frac{2}{6}$.

B. Since 6 is a greater denominator than 3, $\frac{2}{6} > \frac{2}{3}$.

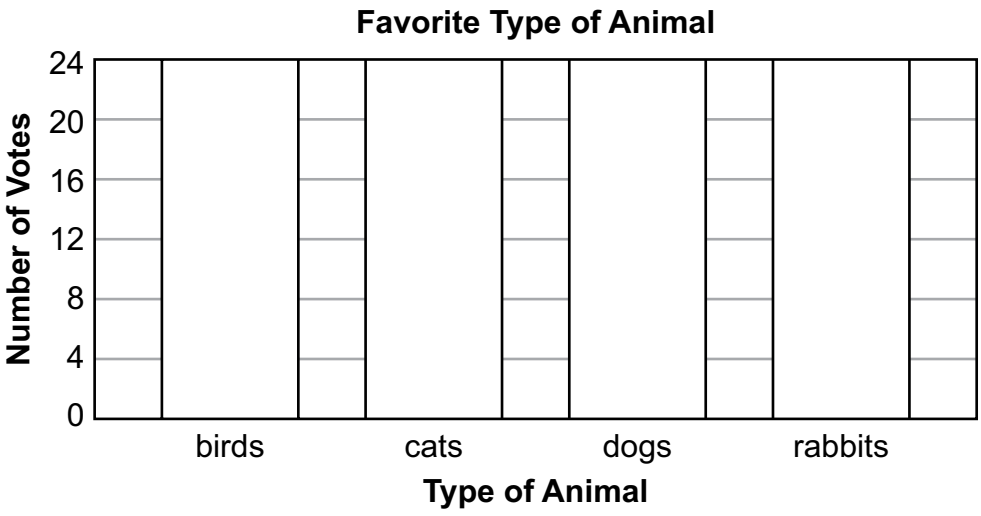
C. Since 2 + 6 = 8, 2 + 3 = 5, and 8 > 5, $\frac{2}{6} > \frac{2}{3}$.

D. Since thirds are larger than sixths, $\frac{2}{3} > \frac{2}{6}$.

12. Some students voted on their favorite type of animal. The results of the vote are shown in the table.

Type of Animal	Number of Votes
birds	4
cats	12
dogs	20
rabbits	8

Complete the bar graph to show the results from the table.



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13. Carla knows that she can pack 45 books onto a bookshelf that has 5 shelves. Each shelf holds the same number of books. She estimates that each shelf holds 10 books. Which statement about Carla's estimate is correct?

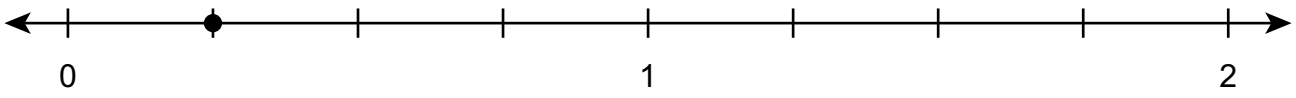
A. The estimate is too low because 5 + 10 is less than 45.

B. The estimate is too low because 5 × 10 is less than 45.

C. The estimate is too high because 5 + 10 is greater than 45.

D. The estimate is too high because 5 × 10 is greater than 45.

14. The point on the number line is plotted at $\frac{1}{4}$. Plot a point on the number line to represent $\frac{5}{4}$.



15. What is the product of 10 × 5?

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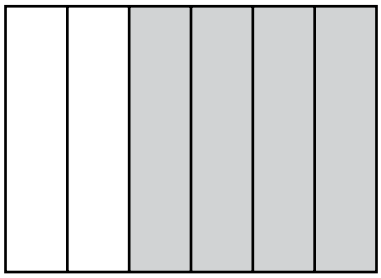
MATHEMATICS ITEMS—SESSION 2

1. For each equation in the table, determine whether it could be used to help solve $12 \div 3 = n$.

	Yes	No
$n \times 3 = 12$		
$3 \times 12 = n$		
$n \times 12 = 3$		

2. The total mass of dirt in 5 pots is 35 kilograms. Each pot has the same amount of dirt. What is the mass, in kilograms, of the dirt in each pot?

3. A figure is shown.



Which fraction represents the shaded area of the figure?

A. $\frac{2}{6}$

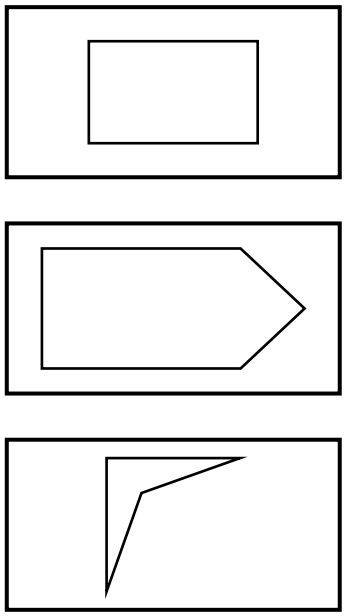
B. $\frac{2}{4}$

C. $\frac{4}{6}$

D. $\frac{4}{2}$

Go on to the next page.

4. Match each figure to the correct description.



quadrilateral

not a quadrilateral

5. Which situation can be represented by the expression 48 ÷ 8?

A. A teacher has 48 pencils and buys 8 more pencils.

B. A teacher has 48 pencils and uses 8 of the pencils.

C. A teacher has 48 pencils and gives each group 8 pencils.

D. A teacher has 48 packs of pencils, and each pack has 8 pencils.

6. Which unit of measurement can be used to describe area?

A. inch

B. pound

C. liter

D. square unit

Go on to the next page.

7. Thomas is solving an equation as shown.

Equation:	**504 − 286 = ?**
Step 1:	286 + 14 = 300
Step 2:	300 + 200 = 500
Step 3:	_____ = 504
Solution:	**14 + 200 + 4 = 218**

Write an expression Thomas can use to complete his work in step 3.

8. Clara and Tony each brought cupcakes to school.

- Clara brought 5 boxes of cupcakes. Each box had 4 cupcakes.
- Tony brought 2 boxes of cupcakes. Each box had 6 cupcakes.

How many cupcakes in total did Clara and Tony bring to school?

A. 7

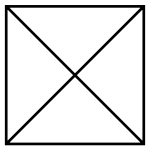
B. 17

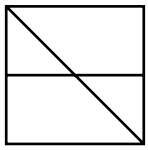
C. 32

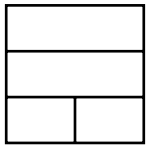
D. 34

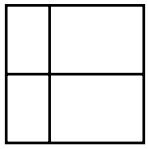
Go on to the next page.

9. Which shape is partitioned into equal areas?

A. 

B. 

C. 

D. 

10. Write a number from the list in each box to create a different fraction that is equivalent to $\frac{6}{8}$.

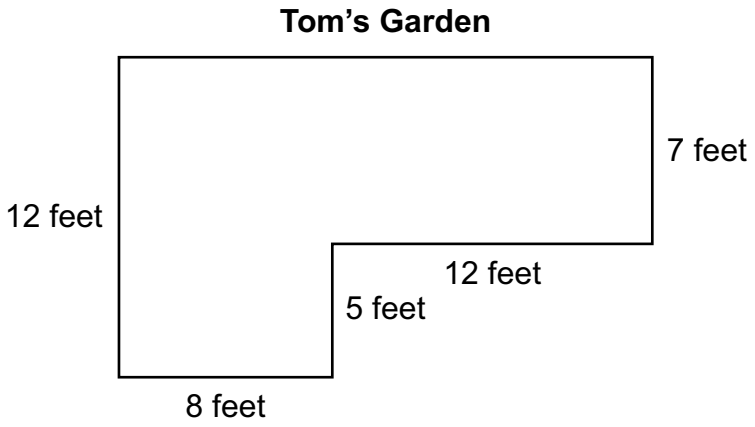
$$\frac{6}{8} = \frac{\square}{\square}$$

1 2 3 4 5

6 7 8 9

Go on to the next page.

11. Tom is putting a fence around his garden. A diagram of Tom's garden is shown.



How many feet of fence does Tom need for his garden?

A. 39

B. 44

C. 59

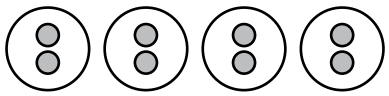
D. 64

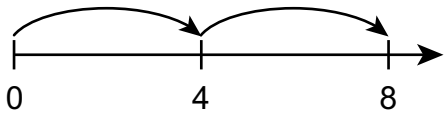
12. There are 4 rows of chairs set up for a meeting. There are 8 chairs in each row. Select the **two** representations that could be used to find the total number of chairs.

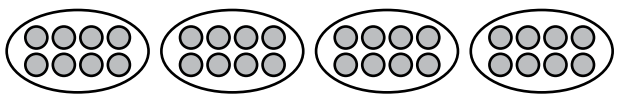
Select **two** options.

A. $8 - 4 = \square$

B. $8 \times 4 = \square$

C. 

D. 

E. 

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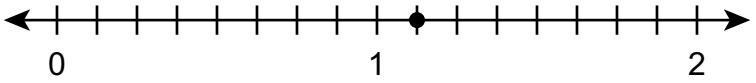
13. A number line is shown.



Which statement **best** describes the location of the point on the number line?

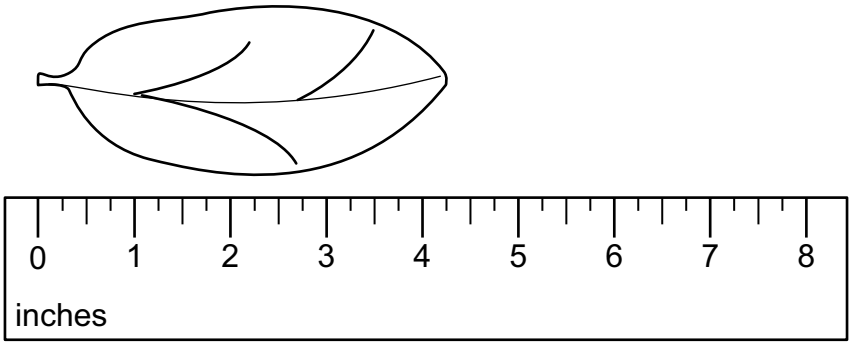
A. The point is at $\frac{7}{8}$ because 7 is 1 less than 8 and the point is 1 part away from 8.

B. The point is at $\frac{7}{8}$ because each part of the number line is $\frac{1}{8}$ and the point is 7 parts away from 2.

C. The point is at $\frac{9}{8}$ because 9 is 1 more than 8 and the point is 1 part away from 8.

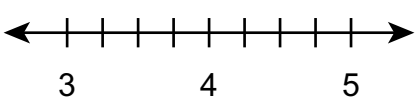
D. The point is at $\frac{9}{8}$ because each part of the number line is $\frac{1}{8}$ and the point is 9 parts away from 0.

14. Homza wants to create a line plot to display the lengths of several leaves. The first leaf he measures is shown.



Plot the length of Homza's first leaf on the line plot.

Leaf Length



inches

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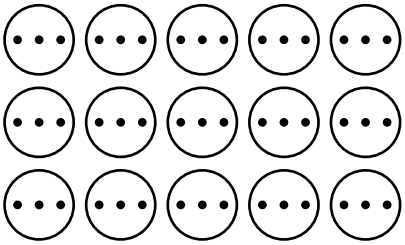
15. A teacher has 15 sheets of colored paper on a shelf. There are 5 sheets of each color. The teacher uses the equation shown to calculate the number of different colors of paper on the shelf.

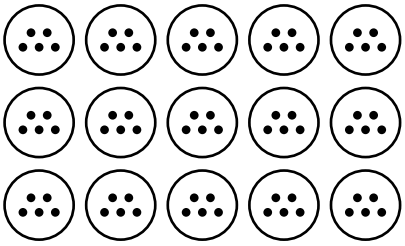
$$15 \div 5 = ?$$

Which model could the teacher also use to find the number of different colors of paper on the shelf?

A.

B.

C. 

D. 

STOP.

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MATHEMATICS—APPENDIX

SUMMARY DATA—GRADE 3, SESSION 1

Number 1	
Alignment	M.3.OA.B.5
Depth of Knowledge	2
Key(s)	C
Points	1
Annotations	The question asks the student to identify an equation that can be used to solve a word problem. A. Incorrect. The student chose an addition equation. B. Incorrect. The student chose a subtraction equation. C. Correct. To determine the number of apples in 3 equal groups, a missing factor equation can be used. D. Incorrect. The student recognized that the problem can be modeled with division but used a divisor in place of the dividend.

Number 2	
Alignment	M.3.NF.A.2a
Depth of Knowledge	3
Key(s)	0 and 1, 3
Points	1
Annotations	The question asks the student to complete a statement describing the location of a fraction on a number line. To receive full credit, the student must choose “0 and 1” for the first drop-down menu and “3” for the second drop-down menu. These are the correct choices because the numerator of the fraction is less than the denominator of the fraction and therefore represents a fraction less than 1. Because the denominator of the fraction is 3, the whole must be divided into 3 equal parts.

Number 3	
Alignment	M.3.MD.C.7b
Depth of Knowledge	2
Key(s)	A, D
Points	2
Annotations	The question asks the student to determine the two rectangles with a given area. To receive full credit, the student must choose choices A and D. To receive partial credit the student must choose choice A or choice D. A. Correct. The student correctly finds a rectangle with an area of 24 square inches. B. Incorrect. The student may have found the perimeter of the square. C. Incorrect. The student finds an area that is close to 24 square inches. D. Correct. The student correctly finds a rectangle with an area of 24 square inches. E. Incorrect. The student incorrectly multiplies 7 in. by 3 in.

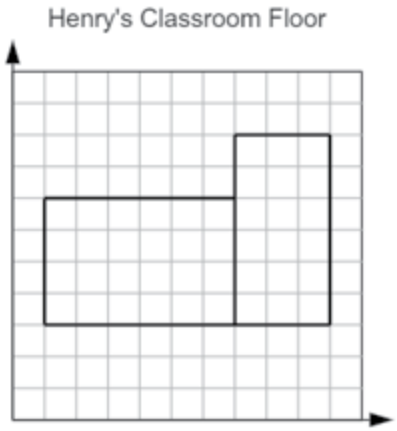
Number 4	
Alignment	M.3.NBT.A.3
Depth of Knowledge	2
Key(s)	360
Points	1
Annotations	The question asks the student to find the total number of crayons given the number of crayons at each table. To receive full credit, the student must enter 360 or an equivalent value.

Number 5	
Alignment	M.3.OA.A.1
Depth of Knowledge	1
Key(s)	A
Points	1
Annotations	The question asks the student to identify a situation that can be modeled by a multiplication expression. A. Correct. Determining the total number of stickers in 5 equal piles of 15 stickers can be solved using a multiplication expression. B. Incorrect. The student chose a situation best modeled by an addition expression. C. Incorrect. The student chose a situation best modeled by a subtraction expression. D. Incorrect. The student chose a situation best modeled by a division expression.

Number 6	
Alignment	M.3.MD.A.1
Depth of Knowledge	1
Key(s)	See Annotations
Points	1
Annotations	The question asks the student to represent a time of day to the nearest minute on a clock. To receive full credit, the student must set the clock to the correct time as shown.

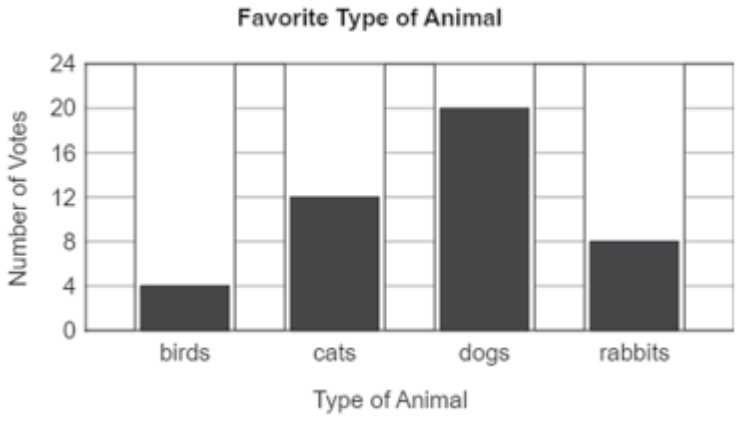
Number 7	
Alignment	M.3.G.A.1
Depth of Knowledge	2
Key(s)	B
Points	1
Annotations	The question asks the student to identify a quadrilateral. A. Incorrect. The student selected a shape with 3 sides. B. Correct. A quadrilateral is a shape with 4 sides. C. Incorrect. The student selected a shape with 5 sides. D. Incorrect. The student selected a shape with 6 sides.

Number 8	
Alignment	M.3.OA.D.8
Depth of Knowledge	2
Key(s)	A
Points	1
Annotations	The question asks the student to determine the rule for a number pattern and decide whether each number in the pattern is even or odd. A. Correct. Each term in the number pattern is 3 more than the previous term. B. Incorrect. The student recognized each term as a multiple of 3 and used multiply as the pattern rule. C. Incorrect. The student recognized all numbers in the pattern as odd. D. Incorrect. The student recognized all numbers in the pattern as even.

Number 9	
Alignment	M.3.MD.C.7d
Depth of Knowledge	2
Key(s)	See Annotations
Points	1
Annotations	The question asks the student to make rectangles from a given shape. To receive full credit, the student must draw a line inside the floor diagram to make a 4 × 6 rectangle and a 6 × 3 rectangle as shown. 

Number 10	
Alignment	M.3.OA.B.4
Depth of Knowledge	1
Key(s)	C
Points	1
Annotations	The question asks the student to identify an expression equivalent to the given expression. A. Incorrect. The student chooses an expression that uses factors of 12. B. Incorrect. The student chooses an expression that uses factors of 12. C. Correct. The expression can be rewritten using the distributive property where the sum of the missing factors is equal to 12. D. Incorrect. The student chooses an expression that uses factors of 12.

Number 11	
Alignment	M.3.NF.A.3d
Depth of Knowledge	2
Key(s)	D
Points	1
Annotations	The question asks the student to compare two fractions and give a reason for the comparison. A. Incorrect. The student may think the fractions are equal because they have the same numerator. B. Incorrect. The student may think a fraction with a larger denominator is larger. C. Incorrect. The student may think the sum of the numerator and denominator of a fraction can be used to compare two fractions. D. Correct. The student understands that when comparing two fractions with the same numerator, a smaller denominator will represent a larger fraction because the size of each part is larger.

Number 12	
Alignment	M.3.MD.B.3
Depth of Knowledge	1
Key(s)	See Annotations
Points	1
Annotations	The question asks the student to draw a scaled bar graph to represent a data set with several categories. To receive full credit, the student must complete the bar graph correctly as shown. 

Number 13	
Alignment	M.3.NBT.A.1
Depth of Knowledge	3
Key(s)	D
Points	1
Annotations	The question asks the student to analyze an estimate. A. Incorrect. The student chose that the estimate is too low based on using addition to think about equal groups. B. Incorrect. The student chose that the estimate is too low based on incorrectly multiplying 5 × 10. C. Incorrect. The student chose that the estimate is too high but used an addition symbol for the calculation and not a multiplication symbol. D. Correct. The student multiplies 5 × 10 to get a value greater than 45.

Number 14	
Alignment	M.3.NF.A.2b
Depth of Knowledge	1
Key(s)	See Annotations
Points	1
Annotations	The question asks the student to represent a fraction on a number line by iterating lengths of the interval representing the size of a fraction. To receive full credit, the student must plot a point at $\frac{5}{4}$ on the number line as shown.

Number 15	
Alignment	M.3.OA.C.6b
Depth of Knowledge	1
Key(s)	50
Points	1
Annotations	The question asks the student to calculate a product. To receive full credit, the student must enter 50 or an equivalent value.

SUMMARY DATA—GRADE 3, SESSION 2

Number 1	
Alignment	M.3.OA.B.5
Depth of Knowledge	2
Key(s)	See Annotations
Points	1
Annotations	The question asks the student to determine whether an equation can be used to solve a given equation. To receive full credit, the student must choose Yes, No, No.

Number 2	
Alignment	M.3.MD.A.2
Depth of Knowledge	1
Key(s)	7
Points	1
Annotations	The question asks the student to determine the mass of dirt in a single pot when given the total mass in 5 pots. To receive full credit, the student must correctly divide 35 by 5 or solve the missing factor problem $5 \times \square = 35$ and enter an answer of 7.

Number 3	
Alignment	M.3.NF.A.1
Depth of Knowledge	1
Key(s)	C
Points	1
Annotations	The question asks the student to determine a fraction based on a model. A. Incorrect. The student chooses a fraction that represents the unshaded area. B. Incorrect. The student chooses a fraction in which the numerator and denominator are the numbers of unshaded and shaded parts. C. Correct. The student chooses a fraction that shows the 4 shaded parts of the 6 total parts. D. Incorrect. The student chooses a fraction in which the numerator and denominator are the number of shaded and unshaded parts.

Number 4	
Alignment	M.3.G.A.1
Depth of Knowledge	2
Key(s)	See Annotations
Points	1
Annotations	The question asks the student to classify each shape as a quadrilateral or not a quadrilateral. To receive full credit, the student must match the first shape with quadrilateral, the second shape with not a quadrilateral, and the third shape with quadrilateral.

Number 5	
Alignment	M.3.OA.A.2
Depth of Knowledge	2
Key(s)	C
Points	1
Annotations	The question asks the student to determine a situation that can be modeled by an expression. A. Incorrect. The student chooses a situation best modeled by addition. B. Incorrect. The student chooses a situation best modeled by subtraction. C. Correct. Measuring the same number of pencils into 8 groups can be modeled by division. D. Incorrect. The student chooses a situation best modeled by multiplication.

Number 6	
Alignment	M.3.MD.C.5a
Depth of Knowledge	1
Key(s)	D
Points	1
Annotations	The question asks the student to identify a unit of measurement that represents area. A. Incorrect. Inch is a measure of length. B. Incorrect. Pound is a measure of weight. C. Incorrect. Liter is a measure of liquid volume. D. Correct. Area is measured in square units.

Number 7	
Alignment	M.3.NBT.A.2
Depth of Knowledge	1
Key(s)	500 + 4 or 4 + 500
Points	1
Annotations	The question asks the student to complete a step in a process that can be used to determine the difference between two numbers. To receive full credit, the student must enter 500 + 4 or 4 + 500.

Number 8	
Alignment	M.3.OA.D.7
Depth of Knowledge	2
Key(s)	C
Points	1
Annotations	The question asks the student to solve a word problem. A. Incorrect. The student might have added the numbers of boxes of cupcakes. B. Incorrect. The student might have added the numbers of boxes to the numbers of cupcakes in each box. C. Correct. The total number of cupcakes can be found by multiplying the number of cupcakes in each of Clara's boxes by the number of boxes she brought, multiplying the number of cupcakes in each of Tony's boxes by the number of boxes he brought, and adding the products. D. Incorrect. The student might have multiplied the numbers of boxes, multiplied the numbers of cupcakes, and then added the products.

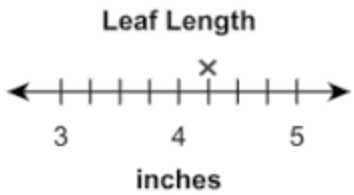
Number 9	
Alignment	M.3.G.A.2
Depth of Knowledge	1
Key(s)	A
Points	1
Annotations	The question asks the student to determine which shape is partitioned into equal areas. A. Correct. The square is partitioned into 4 equal-sized triangles. B. Incorrect. The square has been partitioned into 2 equal-sized triangles and 2 equal-sized quadrilaterals. C. Incorrect. The square has been partitioned into 2 small, equal-sized rectangles and 2 large, equal-sized rectangles. D. Incorrect. The square has been partitioned into 2 small, equal-sized rectangles and 2 large, equal-sized rectangles.

Number 10	
Alignment	M.3.NF.A.3b
Depth of Knowledge	2
Key(s)	$\frac{3}{4}$
Points	1
Annotations	The question asks the student to create a fraction equivalent to a given fraction. To receive full credit, the student must drag 3 into the numerator box and drag 4 into the denominator box. This is the correct answer because the fraction $\frac{3}{4}$ has half the number of parts as the fraction $\frac{6}{8}$, but each part is twice the size.

Number 11	
Alignment	M.3.MD.D.8
Depth of Knowledge	2
Key(s)	D
Points	1
Annotations	The question asks the student to find the perimeter of a garden. A. Incorrect. The student adds the measurements in the diagram except the side length of 5 feet. B. Incorrect. The student adds the measurements in the diagram. C. Incorrect. The student adds the missing side length of 20 feet and the measurements in the diagram except the side length of 5 feet. D. Correct. The student adds the measurements in the diagram and the missing side length of 20 feet.

Number 12	
Alignment	M.3.OA.A.3
Depth of Knowledge	2
Key(s)	B, E
Points	2
Annotations	The question asks the student to select two ways to represent a word problem. To receive full credit, the student must select both B and E. A. Incorrect. The student chooses a subtraction expression. B. Correct. The total number of chairs can be represented by multiplying the number of chairs in each row by the number of rows. C. Incorrect. The student chooses a model that represents 4 groups of 2 for a total of 8. D. Incorrect. The student chooses a model that represents 2 groups of 4 for a total of 8. E. Correct. The problem can be modeled by 4 groups of 8.

Number 13	
Alignment	M.3.NF.A.2b
Depth of Knowledge	1
Key(s)	D
Points	1
Annotations	The question asks the student to determine a fraction from a point on a number line and explain why it is the correct fraction. A. Incorrect. The student chooses an incorrect fraction that subtracts 1 part from the whole instead of adding 1 part to the whole. B. Incorrect. The student chooses an incorrect fraction that represents the distance between the point and the next whole number. C. Incorrect. The student gives an explanation that is not accurate because it describes $\frac{9}{8}$ as one part away from the whole number 8. D. Correct. The student explains that the size of each part is $\frac{1}{8}$ and therefore 9 of the $\frac{1}{8}$ parts create the fraction.

Number 14	
Alignment	M.3.MD.B.4
Depth of Knowledge	1
Key(s)	See Annotations
Points	1
Annotations	The question asks the student to measure an object to the nearest fourth of an inch and then create a line plot of the measurement. To receive full credit, the student must place an x at $4\frac{1}{4}$ as shown. 

Number 15	
Alignment	M.3.OA.C.6a
Depth of Knowledge	2
Key(s)	A
Points	1
Annotations	The question asks the student to identify a model for a division expression. A. Correct. The model shows 3 groups of 5, which represents the division expression given. B. Incorrect. The student chooses a model that shows 3 groups of 15. C. Incorrect. The student chooses a model that shows 15 groups of 3. D. Incorrect. The student chooses a model that shows 15 groups of 5.

Mathematics
Practice Test
Grade 3

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