Grade 5 Math Unit Assessment
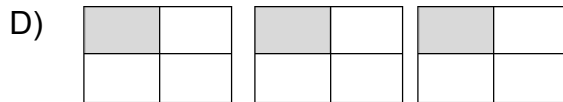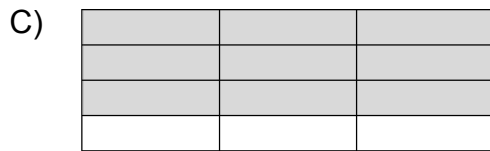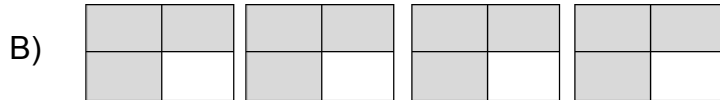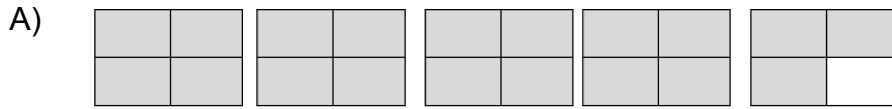## Multiplication and Division of Fractions

Name _____   Date_____

1. Which fraction model best represents $4 \times \frac{3}{4}$?

A)

B)

C)

D)

2. A boa constrictor at a zoo is $10\frac{1}{2}$ feet long. A python at the same zoo is $\frac{3}{4}$ of the length of the boa constrictor. What is the length, in feet, of the python?

A) $8\frac{7}{8}$ feet

B) $7\frac{6}{8}$ feet

C) $7\frac{7}{8}$ feet

D) $9\frac{3}{4}$ feet

3. Mrs. Scott is buying decorative paper to cover a portion of each of her students' desks. The portion she wants to cover measures $\frac{3}{5}$ meter by $\frac{7}{10}$ meter. How many square meters of decorative paper does she need to buy for each desk?

4. Which situation can be represented by this equation? Select all that apply.

$$8 \div \frac{1}{4}$$

☐ Jeff has 8 yards of fabric. He gives $\frac{1}{4}$ of it to his friend. How many yards of fabric does Jeff give his friend?

☐ Jeff has 8 yards of fabric cut into equal sized pieces. Each piece is $\frac{1}{4}$ yard long. How many pieces of fabric does Jeff have?

☐ Jeff has 8 yards of fabric. He gets $\frac{1}{4}$ more yards of fabric. How many yards of fabric does Jeff have now?

☐ Jeff has 8 pieces of fabric cut into equal lengths. He gives away $\frac{1}{4}$ of his pieces of fabric. How many pieces of fabric does Jeff have left?

5. Mikayla has 5 cups of popcorn to share equally with herself and two friends. Decide whether each expression shows the number of cups of popcorn each of the three people will receive.

Choose Yes or No for each expression

$\frac{5}{3}$	○ Yes	○ No
$1\frac{2}{3}$	○ Yes	○ No
$5 \times \frac{1}{3}$	○ Yes	○ No
$5 \div \frac{1}{3}$	○ Yes	○ No
$5 \div 3$	○ Yes	○ No
$3 \div 5$	○ Yes	○ No

6. Sinjin is thinking of a number that is greater than 2 and less than 3. If he doubles his number, will it now be . . .

A) greater than 2 and less than 4?

B) greater than 4 and less than 6?

C) great than 6 and less than 8?

D) None of the above

7. Paolo wants to find the product of $\frac{2}{3} \times 3$. Show a way to find the product using a number line or other model and record the product.

Model: Product: _____

8. Which of the following situations can be represented by $\frac{6}{9}$? Select all that apply.

☐ Mr. Ramirez has 6 mini pizzas to share equally with 9 people.
☐ Ms. Lee has 9 mini pizzas to share equally with 6 people.
☐ Xavier has 6 feet of wood that he will cut into 9 equal length pieces.
☐ Jackson has 9 packs of football cards with 6 cards in each pack.
☐ Allison had 6 points, scored three more, and now she has 9 points.

9. Marshaun said that when you multiply two numbers, the <u>product is **always** larger than either of the two factors</u>. He used the example: $4 \times 2 = 8$, stating that 8 is greater than 4 and 2. Latoya disgreed and said that **sometimes** when multiplying with fractions, she has a <u>product that is *less* than either of the two factors</u>.

Whom do you agree with?

Give an example and use a visual model to prove your answer.

10. Joaquin is studying the size of the product of a whole number and a fraction. Consider the expression below and then select the statement(s) that is/are true.

$$4 \times \frac{n}{6}$$

A) If $n < 6$, then the product will be <u>greater</u> than 4.
B) If $n < 6$, then the product will be <u>less</u> than 4.
C) If $n = 6$, then the product will be <u>greater</u> than 4.
D) If $n = 6$, then the product will be <u>less</u> than 4.

11. Nico has a container with $\frac{1}{2}$ gallon of Gatorade. He drinks $\frac{3}{8}$ of the gatorade at half-time. What fraction of a gallon of Gatorade did Nico drink?

12. Janna needs help multiplying fractions. She is working on the following problem: $\frac{3}{4} \times 1\frac{1}{2}$. Which of the following methods could she use to get the correct answer? Select all that apply.

☐ Multiply $\frac{3}{4}$ by 1 and then multiply $\frac{3}{4}$ by $\frac{1}{2}$ and add the results.

☐ Multiply $\frac{3}{4}$ by $\frac{3}{2}$.

☐ Add $\frac{3}{4}$ once and then add $\frac{1}{2}$ of $\frac{3}{4}$.

☐ Multiply $\frac{4}{3}$ by $\frac{1}{2}$.

☐ Multiply $\frac{3}{4}$ by 1 and then add $\frac{1}{2}$.

13. Tuyen's yard covers $\frac{4}{5}$ of an acre of land. She wants to put grass on $\frac{7}{8}$ of the yard. The model below shows this situation.
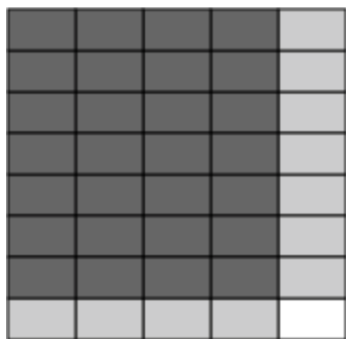
How many acres of her yard will have grass? Record your answer in the box below.

_____ acres

14. Maritza has 4 meters of ribbon to make hair bows for her dance team. If each hair bow needs $\frac{1}{3}$ meter of ribbon, how many hair bows can she make? Show your answer using the number line below and record the answer in the box below.

0 1 2 3 4
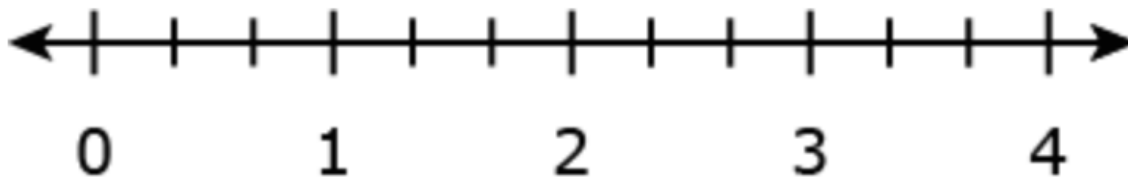
_____ Hair Bows

15. The Vasile family had $\frac{1}{3}$ of a Costco pizza left over. The 4 children decided to share this equally the next day. What fraction of a whole pizza did each child get?

16. Ms. Walker had her class measure the lengths of their pencils and then made a line plot of the data, shown below. Use this to answer the questions below.

Pencil Lengths

3 $3\frac{1}{4}$ $3\frac{1}{2}$ $3\frac{3}{4}$ 4 $4\frac{1}{4}$ $4\frac{1}{2}$ $4\frac{3}{4}$ 5
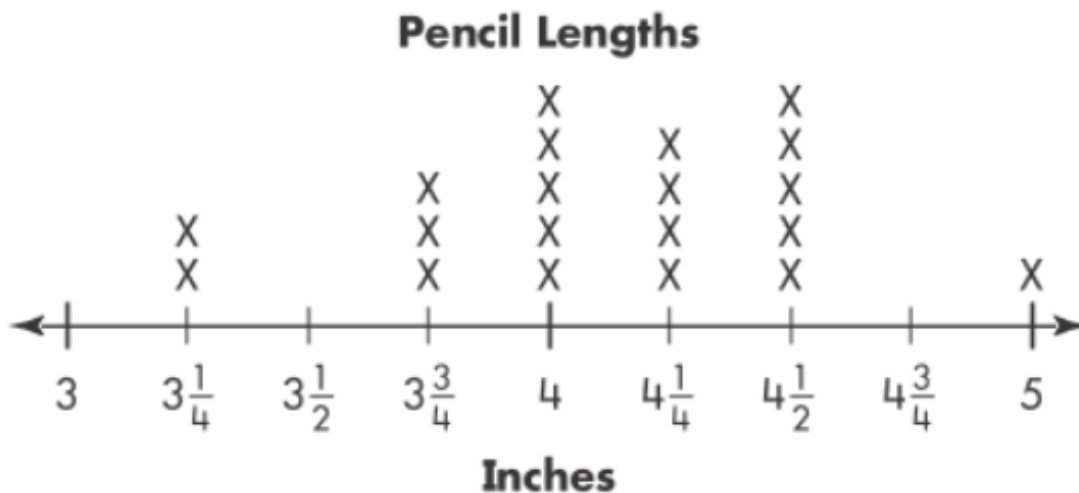
Inches

Part 1: How many students had pencils longer than 4 inches?

Part 2: If all the students who had pencils that are exactly $4\frac{1}{2}$ inches long laid them end-to-end, how long would the line of pencils be?

17. Caiden made 5 full trays of carmel butterscotch brownies. He wants to give each of his friends $\frac{1}{4}$ of a tray of the brownies. How many friends can he give this to?

18. The Warriors averaged 96 points in each of their 103 wins during a season. How many total points did they score that season?

19. Lola walked $4\frac{2}{5}$ miles on Friday. On Saturday she walked $7\frac{1}{2}$ miles. How much further did she walk on Saturday than Friday?

20. Which expression is equivalent to $1 + \frac{2}{3} - \frac{5}{6}$? Select all that are correct.

☐ $\frac{1}{18} + \frac{12}{18} - \frac{15}{18}$

☐ $\frac{1}{6} + \frac{4}{6} - \frac{5}{6}$

☐ $\frac{18}{18} + \frac{12}{18} - \frac{15}{18}$

☐ $\frac{6}{6} + \frac{4}{6} - \frac{5}{6}$

Math Unit Assessment Rubric
Grade 5: Multiplication and Division of Fractions

Question #	Standard	Claim	Answer	Points Possible
1	NF 4	1	B	1 point
2	NF 4, 6	1	C	1 point
3	NF 4, 6	2	$\frac{21}{50}m^2$	1 point
4	NF 6, 7	2	No Yes No No	1 point
5	NF 3	1	Yes Yes Yes No Yes No	<u>2 points as follows:</u> 2 points- all correct 1 point- at least 3 correct yes' and 1 correct No
6	NF 5	2	B	1 point
7	NF 4	1	<u>Model</u>: number line, area model or 3 circles/rectangles/pictures of $\frac{2}{3}$ each <u>Product</u>: $\frac{6}{3}$ or 2	2 points- 1 correct answer; 1 correct model
8	NF 3	2	Yes No Yes No No	<u>2 points as follows:</u> 2 points- all correct 1 point- at least 1 correct yes and 2 correct No's
9	NF 5	3	Latoya; Examples will vary; e.g. either factor < 1 and an area model is a good picture	3 points- 1 for saying Latoya; 1 for an example and 1 for a model
10	NF 5	3	B	1 point

11	NF 6, 7	2	$\frac{3}{16}$gallon	1 point
12	NF 4	1	Yes Yes Yes No No	<u>2 points as follows:</u> 2 points- all correct 1 point- at least 2 correct yes' and 1 correct No's
13	NF 4, 6	1	$\frac{28}{40}\ or\ \frac{7}{10}$	1 point
14	NF 7	1	12	1 point
15	NF 7	1	$\frac{1}{12}$	1 point
16	MD 2	1, 2	Part 1: 10 Part 2: $22\frac{1}{2}\ or\ \frac{45}{2}$	2 points- 1 for each part
17	NF 7	1	20	1 point
18	Review: NBT 5	1	9,888 points	1 point
19	Review: NF 2	1	$3\frac{1}{10}$ (or equivalent answer) more miles	1 point
20	Review: NF 2	1	No No Yes Yes	1 point

Proposed Scoring Guide

Score	Caegory
21-27	**Standards Exceeded**
16-20	**Standards Met**
13-15	**Standards Nearly Met**
0-12	**Standards Not Met**