

## Grade 4 Math Unit 7 Standards Report: Measurement and Data

Student Name: \_\_\_\_\_

Date: \_\_\_\_\_

Standards	Item Number	Point Values
MGSE4.MD.1 Know relative sizes of measurement units within one system of units including km, m, cm; kg, g; lb, oz.; l, ml; hr, min, sec.	1	/1
	2	/1
MGSE4.MD.2 Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving simple fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale.	3	/1
	4a	/1
	4b	/1
	4c	/1
MGSE4.MD.3 Apply the area and perimeter formulas for rectangles in real world and mathematical problems. For example, find the width of a rectangular room given the area of the flooring and the length, by viewing the area formula as a multiplication equation with an unknown factor.	5	/2
	7a	/2
	7b	/2
MGSE4.MD.8 Recognize area as additive. Find areas of rectilinear figures by decomposing them into non-overlapping rectangles and adding the areas of the non-overlapping parts, applying this technique to solve real world problems.	6a	/1
	6b	/2
MGSE4.MD.4 Make a line plot to display a data set of measurements in fractions of a unit ( $\frac{1}{2}$ , $\frac{1}{4}$ , $\frac{1}{8}$ ). Solve problems involving addition and subtraction of fractions with common denominators by using information presented in line plots. For example, from a line plot, find and interpret the difference in length between the longest and shortest specimens in an insect collection.	8	/3
	9	/2
MGSE4.MD.5 Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint, and understand concepts of angle measurement: a. An angle is measured with reference to a circle with its center at the common endpoint of the rays, by considering the fraction of the circular arc between the points where the two rays intersect the circle. An angle that turns through $\frac{1}{360}$ of a circle is called a "one-degree angle," and can be used to measure angles. b. An angle that turns through a one-degree angle is said to have an angle measure of n degrees	10	/1
	11a	/1
	11b	/1

MGSE4.MD.6 Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure.	12	/1
	13	/1
MGSE4.MD.7 Recognize angle measure as additive. When an angle is decomposed into non-overlapping parts, the angle measure of the whole is the sum of the angle measures of the parts. Solve addition and subtraction problems to find unknown angles on a diagram in real world and mathematical problems, e.g., by using an equation with a symbol or letter for the unknown angle measure.	14	/1
	15	/1
Scoring:	<b>Total</b> ____/ 27	
Comments:		

Name: \_\_\_\_\_ Date: \_\_\_\_\_

### Mathematics Grade 4 Unit 7 Pre Assessment: Measurement

MD.1

1. Stephanie jumped 3 feet at the track meet. How many inches did she jump?
- A. 30 inches
  - B. 36 inches
  - C. 48 inches
  - D. 72 inches

MD.1

2. Neil brought in a 3 liter bottle of fruit punch for the class party. How many milliliters of fruit punch are in the bottle?
- A. 30 mL
  - B. 300 mL
  - C. 3,000 mL
  - D. 30,000 mL

MD.2

3. Yolanda bought  $\frac{1}{4}$  lb. of turkey and  $\frac{1}{2}$  lb. of ham at the store. How many ounces of meat did she buy at the store?
- A. Yolanda bought 4 ounces of meat at the store.
  - B. Yolanda bought 8 ounces of meat at the store.
  - C. Yolanda bought 12 ounces of meat at the store.
  - D. Yolanda bought 16 ounces of meat at the store.

MD.2

4. Kyle left for his soccer game at 10:00 AM on Saturday. It took 15 minutes to drive to the soccer field, and 10 minutes to warm-up with his team. The game began 5 minutes later. If the game ended at 11:35 AM, how many minutes did Kyle and his team play the soccer game?

**Part A:** Show your work on the number line below.



**Part B:** Answer \_\_\_\_\_

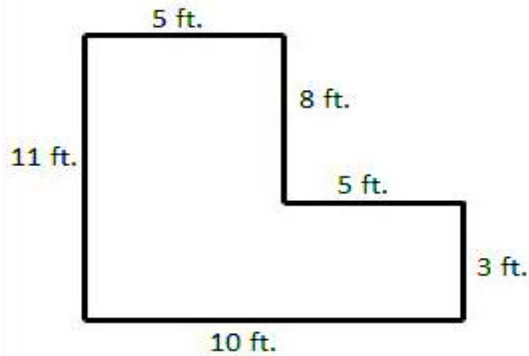
**Part C:** Explain how to set up the number line to solve elapsed time problems.

MD.3

5. Debbie's room has an area of 180 square feet. The width of one wall is 9 feet. What is the length of the other wall? **Use pictures, words or numbers to solve.**

MD.3 and MD.8

6. Find the area and perimeter of the figure below.



**Part A:** Determine the perimeter of this shape. Write an equation and solve.

**Part B:** Determine the area of this shape. Write an equation and solve.

MD.3

7. Sherman wants to build a play pen for his dogs with an area of 48 square feet. He wants to spend the least amount of money possible on fencing.

**Part A:** In the space below, draw and label the length and width of 2 different rectangles he could create that would have an area of 48 square feet.

**Part B:** If the fence material goes around the outside of the yard, **circle** which of your two rectangles would be the least expensive to build. **Explain your thinking.**

MD.4

8. The chart below lists common candies and their weights in pounds. Use the data in the chart to complete the line plot below.

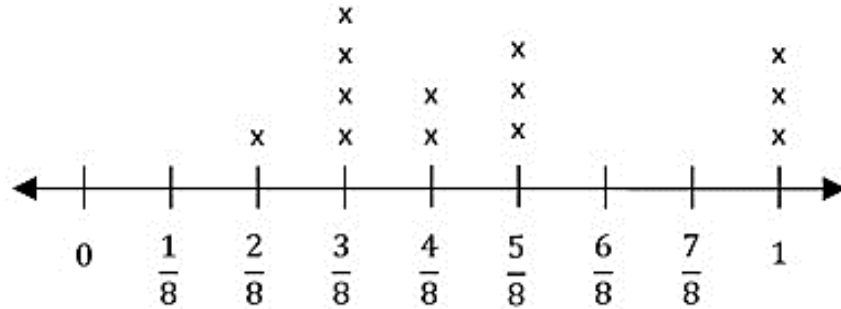
Candy	Weight in Pounds
Sweet Tarts	$\frac{1}{8}$
Jelly Beans	$\frac{2}{8}$
Peanut Butter Cups	$\frac{4}{8}$
Chocolate Bar	$\frac{6}{8}$
Toffee	$\frac{3}{8}$
Gumballs	$\frac{4}{8}$
Peppermints	$\frac{2}{8}$



MD.4

9. Emma recorded the rainfall for the month of April. Use the line plot to answer the questions below.

**Inches of Rain**



What was the least amount of rain recorded? \_\_\_\_\_

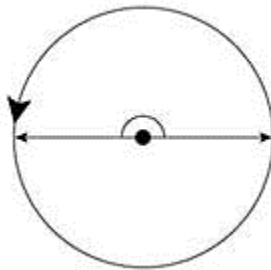
What was the greatest amount of rain recorded? \_\_\_\_\_

What is the difference between the least and the greatest amounts of rain? \_\_\_\_\_

How many total inches of rain occurred in April? \_\_\_\_\_

MD.5a

10. The diagram below shows an angle that is  $\frac{1}{2}$  of a circle.



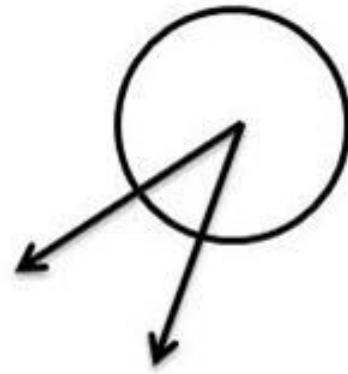
How many degrees is the angle?

- A.  $90^\circ$
- B.  $120^\circ$
- C.  $180^\circ$
- D.  $360^\circ$

MD5a

11. The angle in the diagram is  $\frac{1}{8}$  of a circle.

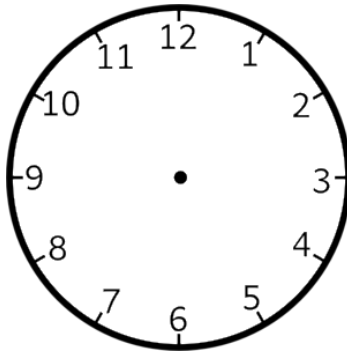
**Part A:** Determine the angle measurement.



**Part B:** Explain how you were able to find this angle measurement without a protractor.

MD.5.b

12. Members of a fourth grade class are debating the angles on a clock.



Who is correct?

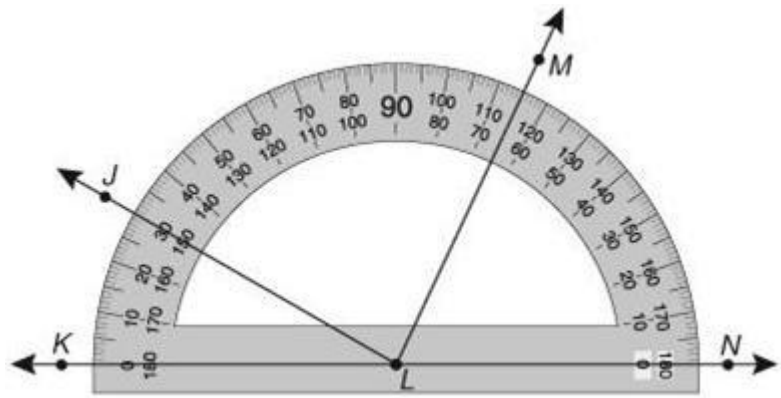
- A. **Isabella** states that the distance between each number represents  $30^\circ$ .
- B. **Katie** states that the distance between each number represents  $5^\circ$ .
- C. **Mike** states that the distance between each number represents  $1^\circ$ .
- D. **Claire** states that there is no way to determine the distance between each number.



MD.6

13. What is the measure of angle MLN?

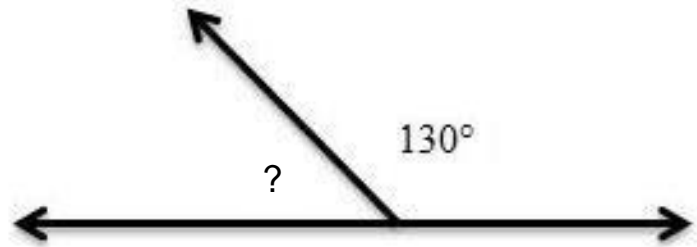
- A.  $55^\circ$
- B.  $65^\circ$
- C.  $115^\circ$
- D. 12



MD.7

14. What is the measurement of the missing angle?

- A.  $45^\circ$
- B.  $50^\circ$
- C.  $130^\circ$
- D.  $180^\circ$

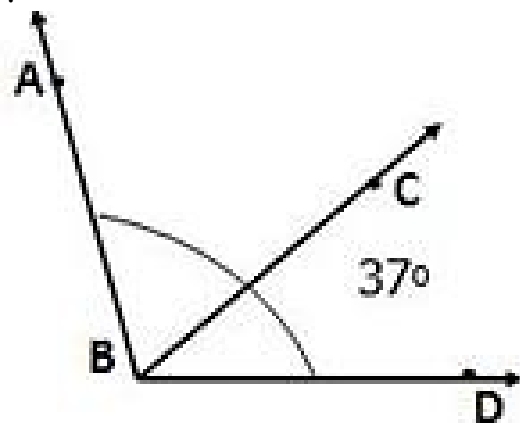


MD.7

15.  $\angle ABD$  measures  $107^\circ$  and  $\angle CBD$  measures  $37^\circ$ .

What is the measure of  $\angle ABC$ ?

- A.  $37^\circ$
- B.  $40^\circ$
- C.  $70^\circ$
- D.  $144^\circ$



## Mathematics Grade 4 Unit 7 Pre/Post Assessment ANSWER KEY

1.	B	1 pt.
2.	C	1 pt.
3.	C	1 pt.
4.	Part A: Students show elapsed time on the number line correctly Part B: 65 minutes or 1 hour 5 minutes Part C: Answers will vary	Part A: 1 pt. Part B: 1 pt. Part C: 1 pt.
5.	20 feet Work shown will vary.	2 pts.
6.	Perimeter = 42 feet Area = 70 sq. feet	Part A: 1 pt Part B: 2 pts.
7.	Part A: Answers will vary – must include factors of 48 Part B: Students chose smaller perimeter and explained correctly	Part A: 2 pts. Part B: 2 pts.
8.	Line plot includes title, fractions placed correctly, data shown correctly	3 pts.
9.	$\frac{2}{8}$ 1 $\frac{6}{8}$ $7\frac{5}{8}$	2 pts.
10.	C	1 pt.
11.	Part A: 45° Part B: Answers will vary	Part A: 1 pt. Part B: 1 pt.
12.	A	1 pt.
13.	B	1 pt.
14.	B	1 pt.
15.	C	1 pt.

Name: \_\_\_\_\_ Date: \_\_\_\_\_

### Mathematics Grade 4 Unit 7 Post Assessment: Measurement

MD.1

1. Stephanie jumped 3 feet at the track meet. How many inches did she jump?
- A. 30 inches
  - B. 36 inches
  - C. 48 inches
  - D. 72 inches

MD.1

2. Neil brought in a 3 liter bottle of fruit punch for the class party. How many milliliters of fruit punch are in the bottle?
- A. 30 mL
  - B. 300 mL
  - C. 3,000 mL
  - D. 30,000 mL

MD.2

3. Yolanda bought  $\frac{1}{4}$  lb. of turkey and  $\frac{1}{2}$  lb. of ham at the store. How many ounces of meat did she buy at the store?
- A. Yolanda bought 4 ounces of meat at the store.
  - B. Yolanda bought 8 ounces of meat at the store.
  - C. Yolanda bought 12 ounces of meat at the store.
  - D. Yolanda bought 16 ounces of meat at the store.

MD.2

4. Kyle left for his soccer game at 10:00 AM on Saturday. It took 15 minutes to drive to the soccer field, and 10 minutes to warm-up with his team. The game began 5 minutes later. If the game ended at 11:35 AM, how many minutes did Kyle and his team play the soccer game?

**Part A:** Show your work on the number line below.



**Part B:** Answer \_\_\_\_\_

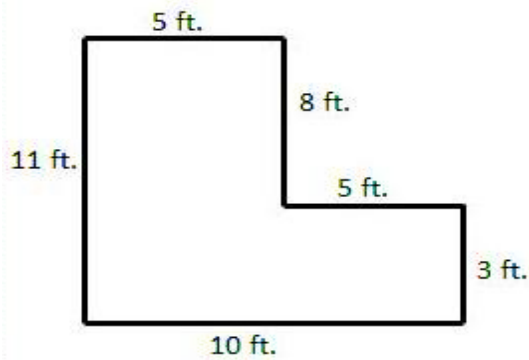
**Part C:** Explain how to set up the number line to solve elapsed time problems.

MD.3

5. Debbie's room has an area of 180 square feet. The width of one wall is 9 feet. What is the length of the other wall? **Use pictures, words or numbers to solve.**

MD.3 and MD.8

6. Find the area and perimeter of the figure below.



**Part A:** Determine the perimeter of this shape. Write an equation and solve.

**Part B:** Determine the area of this shape. Write an equation and solve.

MD.3

7. Sherman wants to build a play pen for his dogs with an area of 48 square feet. He wants to spend the least amount of money possible on fencing.

**Part A:** In the space below, draw and label the length and width of 2 different rectangles he could create that would have an area of 48 square feet.

**Part B:** If the fence material goes around the outside of the yard, **circle** which of your two rectangles would be the least expensive to build. **Explain your thinking.**

MD.4

8. The chart below lists common candies and their weights in pounds. Use the data in the chart to complete the line plot below.

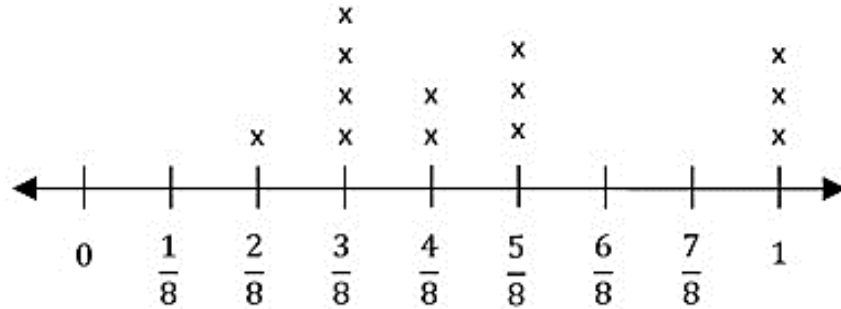
Candy	Weight in Pounds
Sweet Tarts	$\frac{1}{8}$
Jelly Beans	$\frac{2}{8}$
Peanut Butter Cups	$\frac{4}{8}$
Chocolate Bar	$\frac{6}{8}$
Toffee	$\frac{3}{8}$
Gumballs	$\frac{4}{8}$
Peppermints	$\frac{2}{8}$



MD.4

9. Emma recorded the rainfall for the month of April. Use the line plot to answer the questions below.

**Inches of Rain**



What was the least amount of rain recorded? \_\_\_\_\_

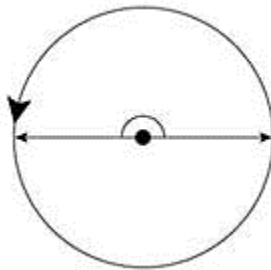
What was the greatest amount of rain recorded? \_\_\_\_\_

What is the difference between the least and the greatest amounts of rain? \_\_\_\_\_

How many total inches of rain occurred in April? \_\_\_\_\_

MD.5a

10. The diagram below shows an angle that is  $\frac{1}{2}$  of a circle.



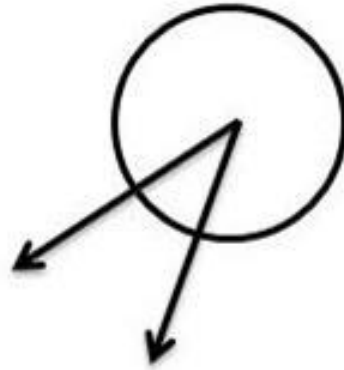
How many degrees is the angle?

- A.  $90^\circ$
- B.  $120^\circ$
- C.  $180^\circ$
- D.  $360^\circ$

MD5a

11. The angle in the diagram is  $\frac{1}{8}$  of a circle.

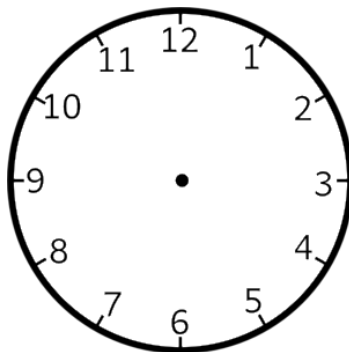
**Part A:** Determine the angle measurement.



**Part B:** Explain how you were able to find this angle measurement without a protractor.

MD.5.b

12. Members of a fourth grade class are debating the angles on a clock.



Who is correct?

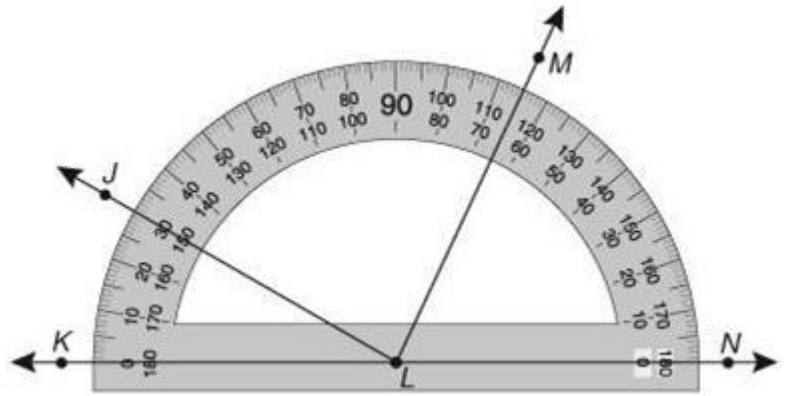
- A. **Isabella** states that the distance between each number represents  $30^\circ$ .
- B. **Katie** states that the distance between each number represents  $5^\circ$ .
- C. **Mike** states that the distance between each number represents  $1^\circ$ .
- D. **Claire** states that there is no way to determine the distance between each number.



MD.6

13. What is the measure of angle MLN?

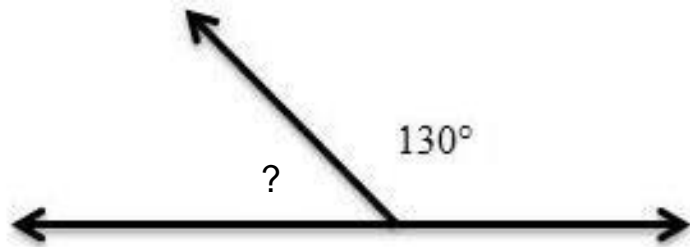
- A.  $55^\circ$
- B.  $65^\circ$
- C.  $115^\circ$
- D. 12



MD.7

14. What is the measurement of the missing angle?

- A.  $45^\circ$
- B.  $50^\circ$
- C.  $130^\circ$
- D.  $180^\circ$



MD.7

15.  $\angle ABD$  measures  $107^\circ$  and  $\angle CBD$  measures  $37^\circ$ .

What is the measure of  $\angle ABC$ ?

- A.  $37^\circ$
- B.  $40^\circ$
- C.  $70^\circ$
- D. 144

