

4th Grade Unit 7: Area, Perimeter, & Line Plots (Form A)

Name _____

Date _____

Standard:

38.MD.3 apply the area and perimeter formulas for rectangles in real world and mathematical problems (e.g., 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)

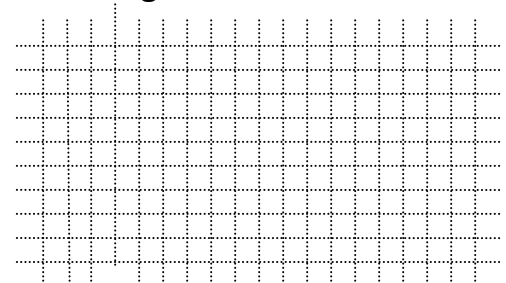
39.MD.4 make a line plot to display a data set of measurements in fractions of a unit ($\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{8}$) Solve problems involving addition and subtraction of fractions by using information presented in line plots (e.g., from a line plot find and interpret the difference in length between the longest and shortest specimens in an insect collection)

1. Would you use area (A) or perimeter (P)? (Circle your answer.)
 - a. to measure the amount fence you need for your yard? A P
 - b. to measure the amount paint you need to cover your wall? A P
 - c. to measure how far you ran in laps around the football field? A P
 - d. to measure the amount of wood you need for a picture frame? A P
 - e. to measure the amount of tile you need for your kitchen floor? A P

2. The edges of Shanae’s rectangular mirror are 42 inches across and 36 inches high. What is the area of Shanae’s mirror?
 - a. 78 inches
 - b. 156 inches
 - c. 1,212 square inches
 - d. 1,512 square inches

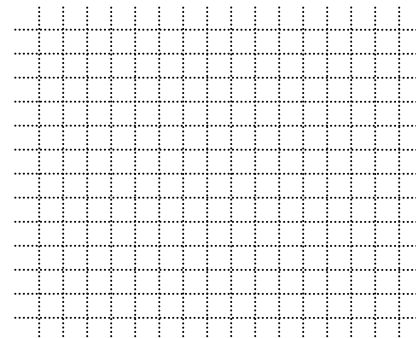
3. A rectangular array has five rows. Each row has 18 squares. How many squares are in the rectangle?

- a. 23
- b. 46
- c. 90
- d. 250



4. Jaden wants to tape all the edges of his picture to the wall. His picture measures 14 inches by 11 inches. Which expression would Jaden use to decide how much tape he will need?
 - a. $P = 14 \times 11$
 - b. $P = 14 + 11$
 - c. $P = (2 \times 14) + (2 \times 11)$
 - d. $P = (2 \times 14) \times (2 \times 11)$

5. A living room floor has an area of 78 square meters. If the length of one side is 6 meters, what is the width?
 _____ Draw a diagram to show how you know.



6. Noel’s dad glued weather stripping around her bedroom window. If the window is 40 inches high and 32 inches wide, how much weather stripping did Noel’s dad use?

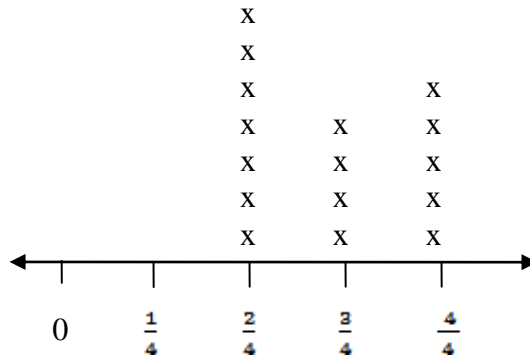
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Use the line plot below to answer questions 7-9.

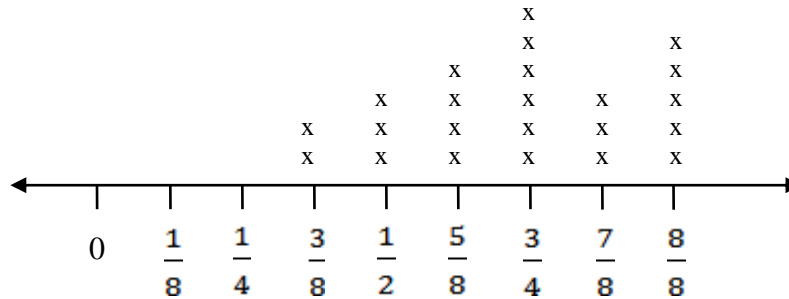
Brandon's class measured paperclips. They found paperclips that measured $\frac{2}{4}$, $\frac{3}{4}$, and $\frac{4}{4}$ inches long. They charted them on the line plot below.



7. How many paperclips measured exactly one inch long? _____
8. If Brandon's class lined up all of the paperclips end to end, how long would the line of paperclips be? _____
9. How many paperclips are at least $\frac{3}{4}$ of an inch long? _____

Use the line plot below for questions 10 - 12

Laila's mom asked her to help sort the picture-hanging nails. She made the following line plot to show the different sizes of nails she found.



10. How many nails measured fewer than $\frac{1}{2}$ inch?
 - a. 2
 - b. 3
 - c. 5
 - d. 21
11. How much longer is the longest nail than the shortest nail?
 - a. $\frac{3}{8}$ inch
 - b. $\frac{4}{8}$ inch
 - c. $\frac{5}{8}$ inch
 - d. 2 inches
12. If Laila laid the $\frac{5}{8}$ inch nails end-to-end, how long would the line of nails be?
 - a. $\frac{4}{8}$ inch
 - b. $\frac{20}{8}$ inches
 - c. $\frac{25}{8}$ inches
 - d. 4 inches

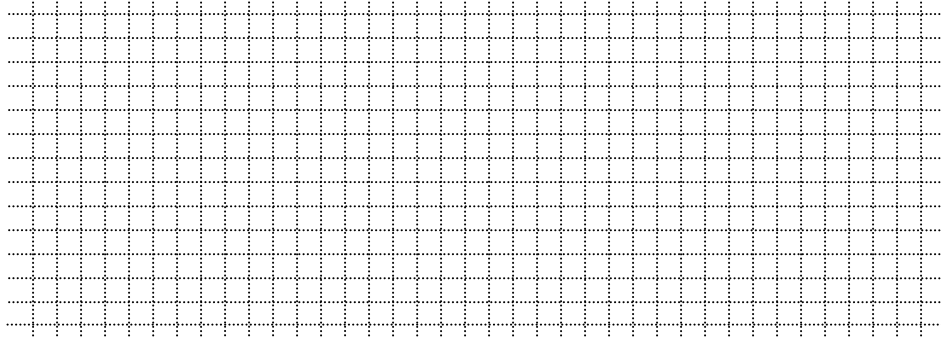
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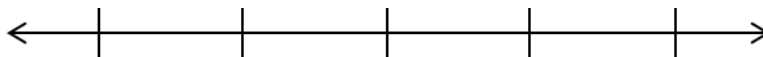
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13. Marcus wants to paint one wall of his room black. The wall is 13 feet wide, 9 feet high, and has no doors or windows. A quart of paint covers 100 square feet. Will one quart of paint be enough to paint his wall? _____
Explain how you know.

14. Cameron read that a rectangular dog pen needs to have an area of at least 36 square yards to allow room for the dog to run. He says he can't buy the chain link fencing until he decides what length to make each side of the pen. Jacob says it doesn't matter what size he makes the sides of his dog pen, he will need the same amount of fencing because he knows the area is 36 square yards. Who is correct? _____
Draw diagrams and explain your answer.



15. Jared's class is not very consistent in completing homework. Last night 4 students did no homework, 5 students did one-fourth of the homework, 6 students did half of the homework, and only 8 students completed the homework assignment. Make a line plot to show the homework completion in Jared's class.



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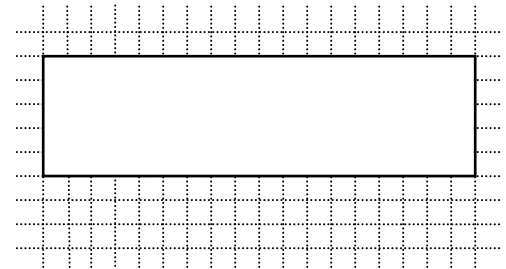
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Answer Key

1. a. to measure the amount fence you need for your yard? A P
 b. to measure the amount paint you need to cover your wall? A P
 c. to measure how far you ran in laps around the football field? A P
 d. to measure the amount of wood you need for a picture frame? A P
 e. to measure the amount of tile you need for your kitchen floor? A P

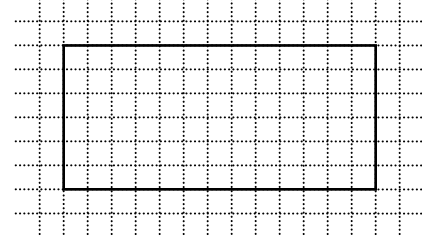
2. a. 78 inches
 b. 156 inches
 c. 1,212 square inches
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3. a. 23
 b. 46
 c. 90
 d. 250



4. a. $P = 14 \times 11$
 b. $P = 14 + 11$
 c. $P = (2 \times 14) + (2 \times 11)$
 d. $P = (2 \times 14) \times (2 \times 11)$

5. 13 meters



6. 144 inches

7. 5 paperclips measured exactly 1 inch long

8. The line of paperclips would be $11 \frac{1}{2}$ inches long.

9. 9 paperclips are at least $\frac{3}{4}$ inch long

10. a. 2 b. 3 c. 5 d. 21

11. a. $\frac{3}{8}$ inch b. $\frac{4}{8}$ inch c. $\frac{5}{8}$ inch d. $\frac{6}{8}$ inch

12. a. $\frac{4}{8}$ inch b. $\frac{20}{8}$ inches c. $\frac{25}{8}$ inches d. 4 inches

13. No, one quart of paint will not be enough. Answers will vary but should include the information that $9 \times 13 = 117$ square feet, and a quart of paint will only cover 100 square feet.

14. Cameron is correct. Students need to explain that rectangles with different perimeters can have the same area. They can draw examples of rectangles that are 2×18 , 4×9 , or 6×6 . Each has an area of 36 square yards. The first has a perimeter of 40 yards, the second a perimeter of 26 yards, and the third a perimeter of 24 yards.

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