

Name: Key
Date: _____

Mr. Johnson
Math 8

Lesson 1.3 – Measuring Line Segments

Investigate:

Complete the investigation on pg. 17 with a partner. Use the graph paper to answer the following questions. Be sure to show your work for any calculations.

Investigate Questions:

see attached

1. How many squares did you draw?
3

2. Describe any patterns in your measurements.

When I measured I tried to break the large square into manageable measurable pieces.

3. How did you find the area and side length of each square?

The area of the first two were easy but for the other two I tried to break them down into composite shapes to get the area. The side length simply becomes the $\sqrt{\text{area}}$.

4. How did you write the side lengths of squares C and D

As a square root

Examples:

1. Find the length of line segment AB.

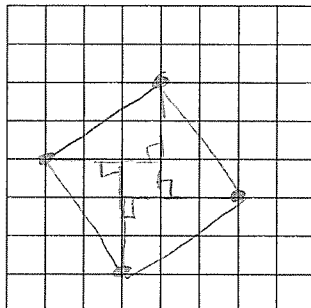
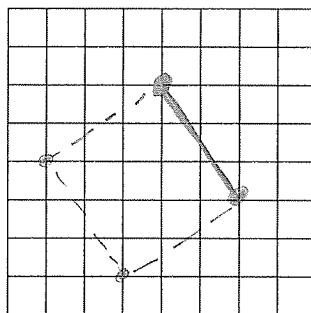
- use a straight edge and a protractor
- complete the square
- cut the square into 4 congruent triangles

$$A_{\Delta} = \frac{bh}{2}$$
$$= \frac{(2)(3)}{2}$$

$$= \frac{2}{2} \times 4 \text{ triangles}$$

$$= 12 + 1 \text{ (square in middle)}$$

$$A_{\square} = \underline{13} \text{ sq units. } \therefore \text{the side length is } \sqrt{13}$$



Note:

Since 13 is not a square #, we cannot write $\sqrt{13}$ as a whole number. We call a number like $\sqrt{13}$ an irrational number. If you put $\sqrt{13}$ into your calculator it will show as an approximate value

2. Find the area of square ABCD

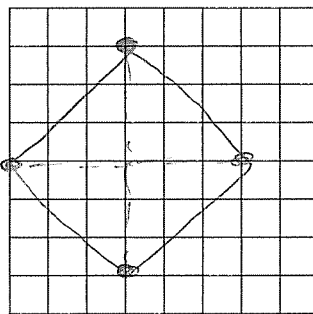
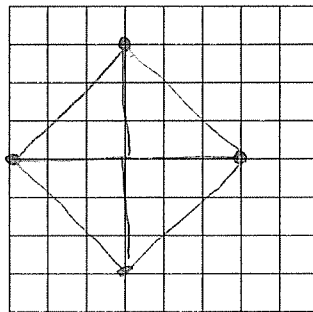
-first cut into 4 congruent triangles

$$A_{\Delta} = \frac{bh}{2}$$
$$= \frac{(2)(3)}{2}$$

$$= \frac{9}{2} \times 4 \text{ triangles}$$

$$A_{\square} = \frac{36}{2} = 18 \text{ units}^2$$

note: no square in middle



Assignment:

Pg. 19-21
#s 1-11