


Grade 4 Mathematics

Geometry: Lesson 9

Read aloud to the students the material that is printed in **boldface type** inside the boxes. Information in regular type inside the boxes and all information outside the boxes should **not** be read to students. Possible student responses are included in parentheses after the questions.

NOTE: The directions read to students may depend on the available materials. Read only those parts of the lesson that apply to the materials you are using.

Any directions that ask you to do something, such as to turn to a page or to hand out materials to students, will have an arrow symbol () by them.

Purpose of Lesson 9:

- In this lesson, the tutor and the students will
 - ✓ draw a figure with symmetry on dot paper, and
 - ✓ draw a figure congruent to a given figure on dot paper.

Equipment/Materials Needed:

- Copies of Student Sheet 112
- Paper and pencils
- Chalkboard

Preparations before beginning Lesson 9:

- Run one copy of Student Sheet 112 for each student.
- Have paper and pencils available.
- You should cover Lesson 4 of Geometry before beginning this lesson.

Lesson 9: Geometry

Say:

In this lesson, you will review some of the geometry terms that you have studied so far. You will use dot paper to draw figures. What does it mean for a figure to have symmetry? (The figure can be folded in half so that the two parts match exactly.)

Give students Student Sheet 112.

Say:

In Square 1, draw a letter of the alphabet that has one line of symmetry. (A, B, C, D, E, K, M, T, U, V, W, Y) In Square 2, draw a letter of the alphabet that has more than one line of symmetry. (H, I, O, X) In Square 3, draw a letter of the alphabet that has no lines of symmetry. (F, G, J, L, P, Q, R, S, Z.) Look at Problems 4 – 6. Tell how many lines of symmetry each letter has.

Answers:

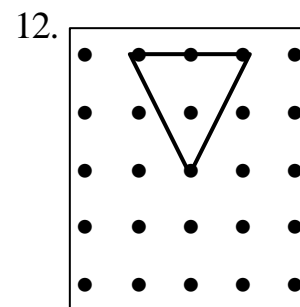
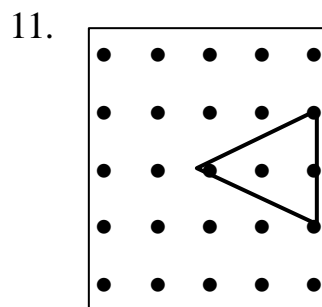
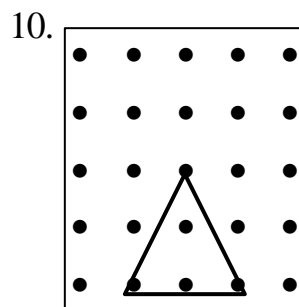
4. 1 5. 0 6. 2

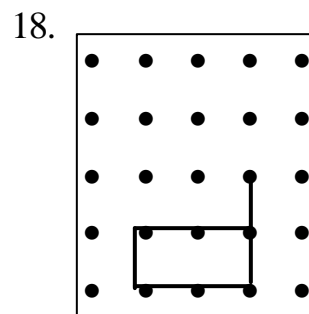
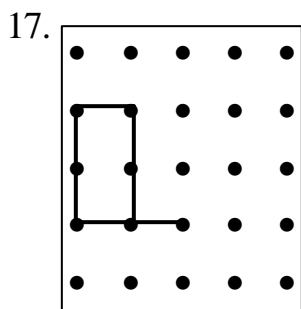
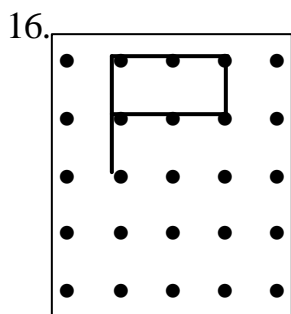
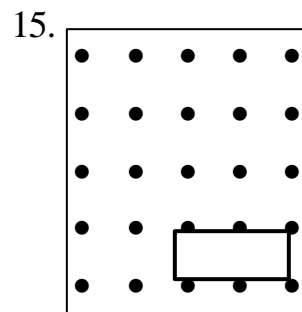
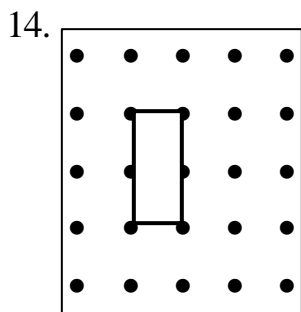
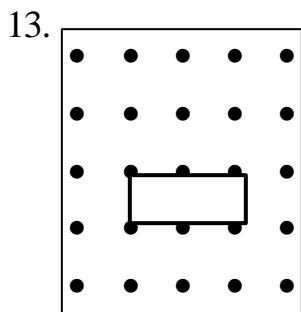
Say:


What are congruent figures? (figures that are the same size and the same shape) Congruent figures can be moved, turned, or flipped; but they are still congruent. Look at Squares 7 – 9. The figures are all congruent. How can you tell that they are congruent? (I could cut them out and place them on top of one another. The figures are the same size and same shape. The four sides of each figure match exactly.) In Squares 10 – 18, draw 2 figures congruent to the first figure in each row.

Answers:

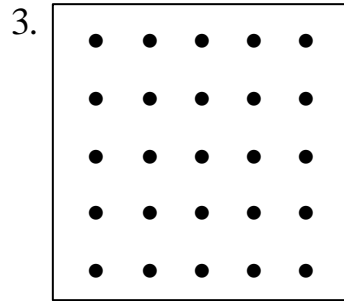
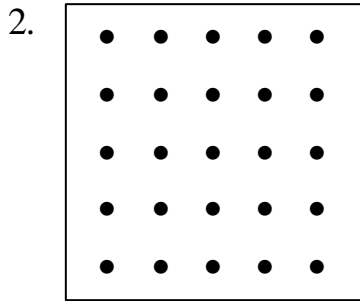
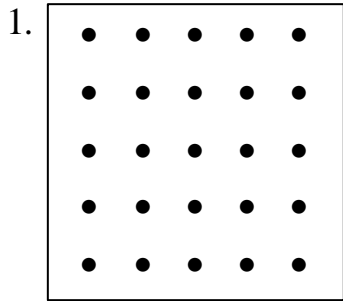
Drawings will vary, but these are some examples.



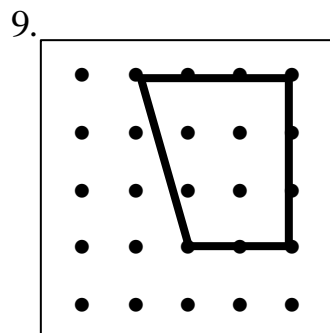
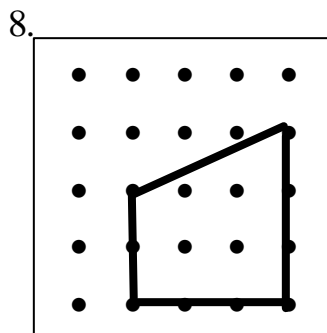
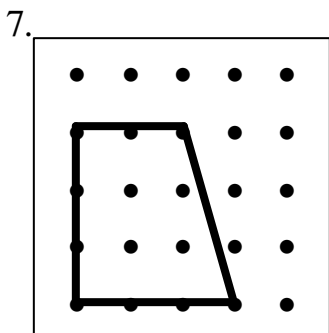
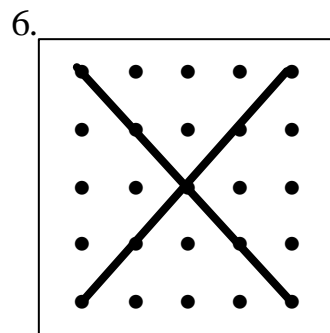
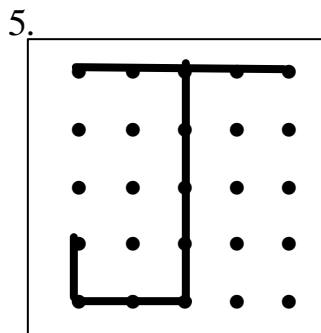
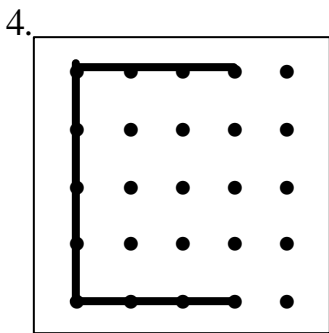


 Have one student summarize today's lesson. Using the dot paper gives students another view on symmetry and congruence.

Student Sheet 112 (Geometry: Lesson 9)



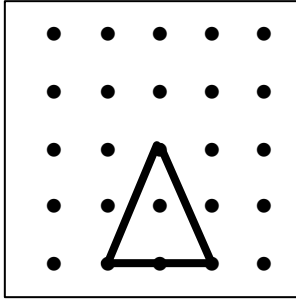
How many lines of symmetry does each of the letters in Problems 4 – 9 have?



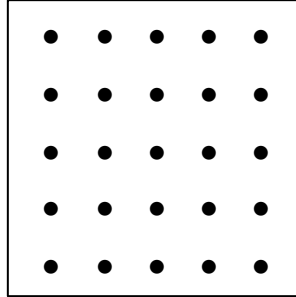
Student Sheet 112 (Geometry: Lesson 9) (continued)

Draw two figures that are congruent to the figure in Square 10.

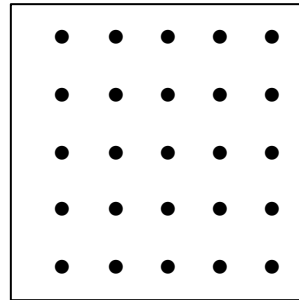
10.



11.

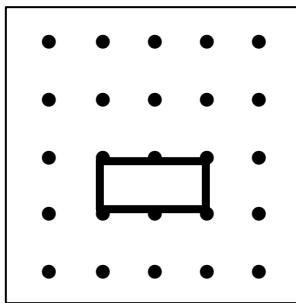


12.

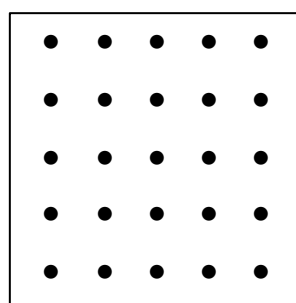


Draw two figures that are congruent to the figure in Square 13.

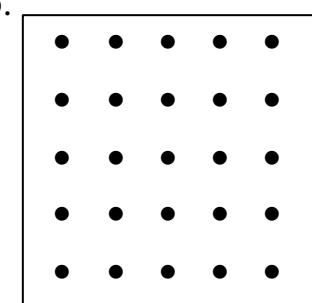
13.



14.

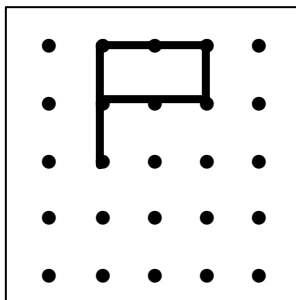


15.

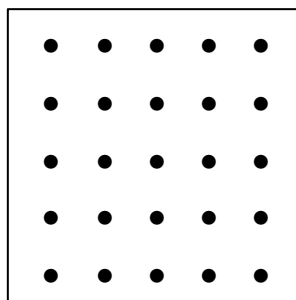


Draw two figures that are congruent to the figure in Square 16.

16.



17.



18.

