

Independent Practice

9.5

NAME _____

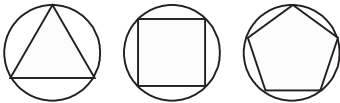
Module 9 Characteristics of Geometric Shapes
Lesson 5 Inductive and Deductive Reasoning

Give the next term in each sequence.

1. 1, 4, 9, 16, ...

2. 2, 3, 5, 8, 12, ...

3.



4.



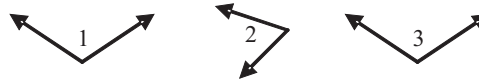
5. Lynne knows that quadrilateral $ABCD$ has four congruent sides. She conjectured that the quadrilateral must be a square. Find a counterexample to prove her conjecture false.

6. Maggie noticed that $1^2 = 1$, $2^2 = 4$, and $3^2 = 9$. She conjectured that the square of any number is a positive number. Find a counterexample to prove her conjecture false.

7. Determine if this argument is an example of inductive or deductive reasoning and determine its validity.

Every right triangle has two acute angles. In triangle ABC , $\angle A$ is a right angle. Therefore, $\angle B$ and $\angle C$ must be acute angles.

8. Use deductive reasoning to prove that $\angle 1 \cong \angle 3$, given that $\angle 1$ and $\angle 2$ are supplementary and $\angle 3$ and $\angle 2$ are supplementary.



Journal

1. Tell how inductive reasoning differs from deductive reasoning.
2. Explain the meaning of *conjecture*. Give two conjectures for the next term in the pattern 5, 25. How does the number of terms given in a pattern determine the likelihood of a conjecture being correct?
3. Explain the meaning of *counterexample*. Tell how $3 - (-5) = 8$ is a counterexample to the statement: "The difference of two numbers is always less than the minuend."

Cumulative Review

1. Draw a concave hexagon.
2. How many sides are in a decagon?
3. Draw a regular quadrilateral.

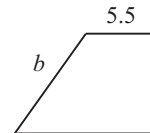
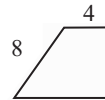
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4. To the nearest inch, find the circumference of a circle with a diameter of 56 inches.

5. Sketch a circle with radius \overline{KP} and diameter \overline{PA} .

6. The trapezoids are similar. Find the value of b .



7. A 5 inch by 7 inch photo is enlarged to $6\frac{1}{4}$ inches by $8\frac{3}{4}$ inches. What is the scale factor, written as a percent?

8. Bobby is making a scale drawing of a basketball court. His scale is $\frac{1}{4}$ in. = 1 ft. What will be the dimensions of the court on the drawing if the actual dimensions are 50 feet by 84 feet?

Additional Work Area