Lesson 2.4 • Deductive Reasoning

Name _____ Period _____ Date _____

1. $\triangle ABC$ is equilateral. Is $\triangle ABD$ equilateral? Explain your answer. What type of reasoning, inductive or deductive, do you use when solving this problem?

2. $\angle A$ and $\angle D$ are complementary. $\angle A$ and $\angle E$ are supplementary. What can you conclude about $\angle D$ and $\angle E$? Explain your answer. What type of reasoning, inductive or deductive, do you use when solving this problem?

3. Which figures in the last group are whatnots? What type of reasoning, inductive or deductive, do you use when solving this problem?

| Whatnots | Not whatnots | Which are whatnots? |

4. Solve each equation for x. Give a reason for each step in the process. What type of reasoning, inductive or deductive, do you use when solving these problems?

   a. $4x + 3(2 - x) = 8 - 2x$

   b. $\dfrac{19 - 2(3x - 1)}{5} = x + 2$

5. A sequence begins $-4, 1, 6, 11 \ldots$

   a. Give the next two terms in the sequence. What type of reasoning, inductive or deductive, do you use when solving this problem?

   b. Find a rule that generates the sequence. Then give the 50th term in the sequence. What type of reasoning, inductive or deductive, do you use when solving this problem?
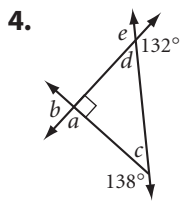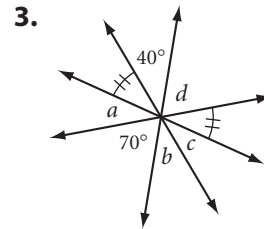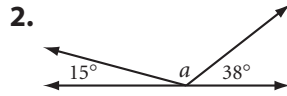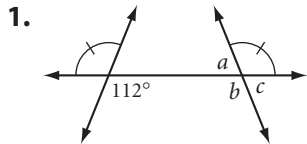
Lesson 2.5 • Angle Relationships

Name _____ **Period** _____ **Date** _____

For Exercises 1–6, find each lettered angle measure without using
a protractor.

1.

2.

3.

4.

5.

6.
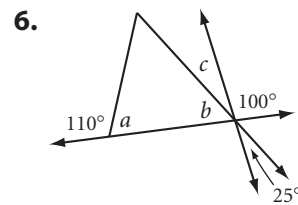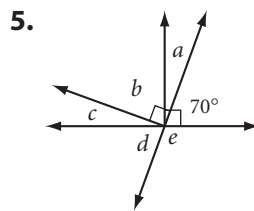
For Exercises 7–10, tell whether each statement is always (A),
sometimes (S), or never (N) true.

7. _____ The sum of the measures of two acute angles equals the
measure of an obtuse angle.

8. _____ If ∠XAY and ∠PAQ are vertical angles, then either X, A, and P
or X, A, and Q are collinear.

9. _____ If two angles form a linear pair, then they are complementary.

10. _____ If a statement is true, then its converse is true.

For Exercises 11–15, fill in each blank to make a true statement.

11. If one angle of a linear pair is obtuse, then the other is _____.

12. If ∠A ≅ ∠B and the supplement of ∠B has measure 22°, then
$m\angle A =$ _____.

13. If ∠P is a right angle and ∠P and ∠Q form a linear pair, then
$m\angle Q$ is _____.

14. If ∠S and ∠T are complementary and ∠T and ∠U are supplementary,
then ∠U is a(n) _____ angle.

15. Switching the "if" and "then" parts of a statement changes the
statement to its _____.