#### Date: \_

#### BLM 7.CT.1

# **Chapter 7 Test**

### **Multiple Choice**

For questions 1 to 5, select the best answer.

- The exterior angle at the vertex formed by the equal sides of an isosceles triangle is 140°. Which are the measures of the exterior angles at the other vertices?
   A 140°, 80°
   B 110°, 110°
  - **C**  $40^{\circ}$ ,  $40^{\circ}$  **D**  $40^{\circ}$ ,  $80^{\circ}$
- 2. In △MNP, the interior angle at N is 24° and the exterior angle at P is 55°. Which is the measure of the interior angle at M?
  A 101° B 79° C 31° D 281°
- **3.** The sum of the interior angles of a convex pentagon
  - A is always 360°
  - **B** is always 540°
  - **C** is always 180°
  - **D** depends on the shape of the pentagon
- **4.** The area of  $\triangle$  ABC is



- A equal to the area of  $\triangle BCD$
- **B** half the area of  $\triangle ABD$
- **C** half the area of  $\triangle$ BCD
- **D** double the area of  $\triangle ABD$
- **5.** The diagonals of a parallelogram
  - A are always perpendicular to each other
  - **B** always bisect the interior angles
  - C always bisect each other
  - **D** always bisect each other at right angles

#### Short Response

Show all steps to your solution.

6. Find the measure of each indicated angle.



- 7. What is the sum of the interior angles of a convex polygon with 9 sides?
- 8. Explain why each conjecture is true, or use a counterexample to show it is false.
  - a) A triangle can have more than one obtuse angle.
  - **b**) A quadrilateral can have more than one obtuse angle.

## Extend

Provide complete solutions.

- **9.** The sum of the interior angles of a regular convex polygon is 2520°.
  - a) What is the measure of each interior angle?
  - **b**) What is the measure of each exterior angle?
- **10.** One exterior angle of an isosceles triangle is 80°.
  - a) Find the possible measures of the other two exterior angles.
  - **b)** How many answers can you find? Explain.

Date: \_\_\_\_

# BLM 7.CT.1 Chapter 7 Test

- **1.** B
- **2.** C
- **3.** B
- **4.** D
- 5. C
- **6. a**)  $x = 53^{\circ}$  **b**)  $x = 145^{\circ}$ 
  - c)  $x = y = z = 60^{\circ}; a = b = c = 120^{\circ}$
  - **d**)  $a = 126^{\circ}; b = 131^{\circ}; c = 110^{\circ}; d = 147^{\circ}; e = 49^{\circ}$
- **7.** 1260°
- 8. a) False; the sum of the interior angles of a triangle is 180°. If two angles are obtuse, the sum of the angles will be greater than 180°.
  - b) True; the sum of the interior angles of a quadrilateral is 360°. A quadrilateral can have one or two obtuse angles.



BLM 7.CT.1

b) One; if the 80° exterior angle is at one of the vertices with equal interior angles, the equal interior angles would be 100°. The sum of the interior angles of a triangle is 180°.
2 × 100° = 200°, so this triangle is not possible.