Review Key Vocabulary

transversal, *p. 104*

interior angles, *p. 105*

exterior angles, *p. 105*

interior angles of a polygon, *p. 112*

exterior angles of a polygon, *p. 112*

convex polygon, *p. 119*

concave polygon, *p. 119*

regular polygon, *p. 121*

indirect measurement, *p. 129*

Review Examples and Exercises

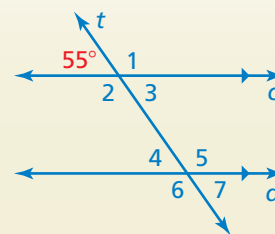### 3.1 Parallel Lines and Transversals (pp. 102–109)

Use the figure to find the measure of ∠6.

∠2 and the 55° angle are supplementary.
So, the measure of ∠2 is $180° - 55° = 125°$.

∠2 and ∠6 are corresponding angles.
They are congruent.

∴ So, the measure of ∠6 is 125°.

Exercises

Use the figure to find the measure of the angle. Explain your reasoning.

1. ∠8   **2.** ∠5

3. ∠7   **4.** ∠2
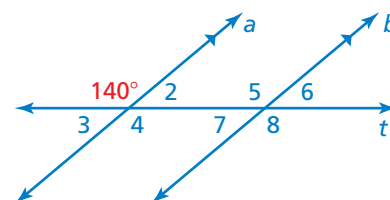
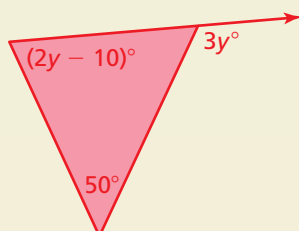### 3.2 Angles of Triangles (pp. 110–115)

a. Find the value of x.
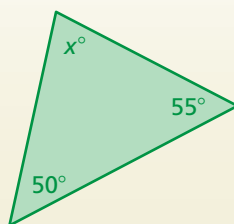
$$x + 50 + 55 = 180$$
$$x + 105 = 180$$
$$x = 75$$

∴ The value of x is 75.

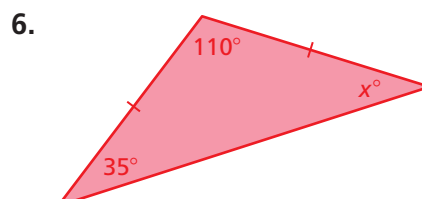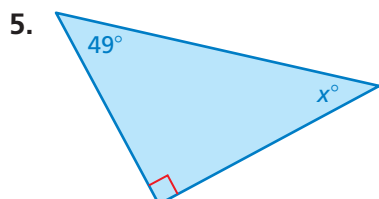**b. Find the measure of the exterior angle.**
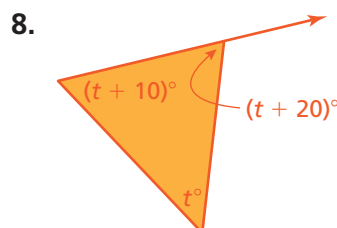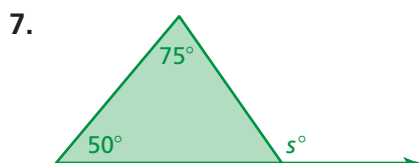
$$3y = (2y - 10) + 50$$
$$3y = 2y + 40$$
$$y = 40$$

∴ So, the measure of the exterior angle is $3(40)° = 120°$.

Exercises

Find the measures of the interior angles.

5.

49°
x°

6.

110°
x°
35°

Find the measure of the exterior angle.

7.

75°
50°   s°
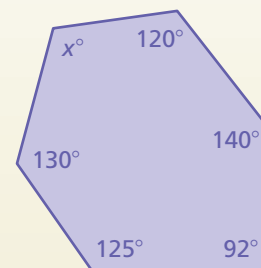
8.

(t + 10)°
(t + 20)°
t°

Angles of Polygons *(pp. 118–125)*

a. **Find the value of x.**

Step 1: The polygon has 6 sides. Find the sum of the interior angle measures.

$$S = (n - 2) \cdot 180°$$ Write the formula.

$$= (6 - 2) \cdot 180°$$ Substitute 6 for n.

$$= 720$$ Simplify. The sum of the interior angle measures is 720°.

x°   120°
130°   140°
125°   92°

Step 2: Write and solve an equation.

$$130 + 125 + 92 + 140 + 120 + x = 720$$
$$607 + x = 720$$
$$x = 113$$

⋮⋮ The value of x is 113.

b. **Find the measures of the exterior angles of the polygon.**
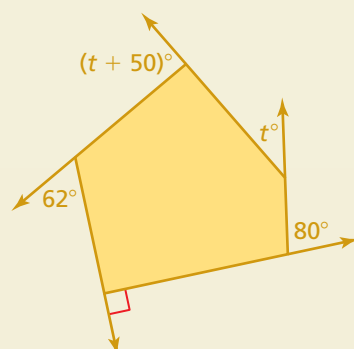
Write and solve an equation for t.

$$t + 80 + 90 + 62 + (t + 50) = 360$$
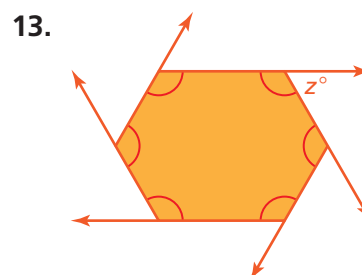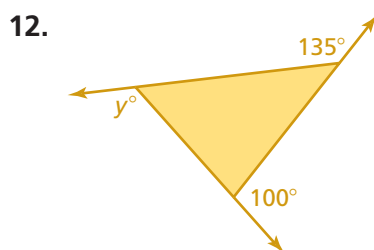$$2t + 282 = 360$$
$$2t = 78$$
$$t = 39$$

(t + 50)°
t°
62°
80°

⋮⋮ So, the measures of the exterior angles are 39°, 80°, 90°, 62°, and $(39 + 50)° = 89°$.

Exercises

Find the measures of the interior angles of the polygon.

9.

128° 95°

60° x°

10.

105°
150°
135° 140°
125°
135° x°

11.

60°
120° 2x°
65°
100° x°

Find the measures of the exterior angles of the polygon.

12.

135°
y°
100°

13.

z°
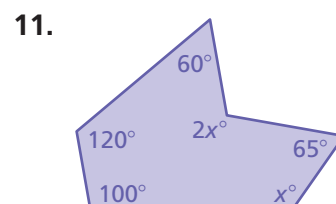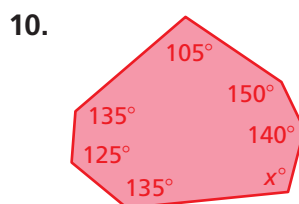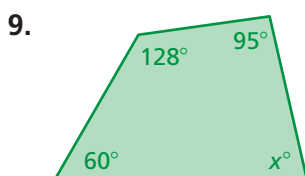
3.4 Using Similar Triangles (pp. 126–131)

Tell whether the triangles are similar. Explain.

85°

50° x°

85°

y°
35°

Write and solve an equation to find x.

$$50 + 85 + x = 180$$
$$135 + x = 180$$
$$x = 45$$

⋮ The triangles do not have two pairs of congruent angles. So, the triangles are not similar.

Exercises

Tell whether the triangles are similar. Explain.

14.

68°
x°

22°
y°

15.

100°
x°
30°
50°
y°
100°