Use angles of different sizes to determine which ones form a triangle.

1. Draw two sets of angles measuring 30°, 45°, 60°, and 90° on different pieces of patty paper.

 Extend the ray so each angle to the edges of the patty paper.

 30° 45° 60° 90°

1. Try to form a triangle with one 90° angle, and two 45° angles. Does it form a right angle?
2. Try to form triangles using the angle measures that are given in the table. Fill in **yes** or **no** in the fourth column of the table.

|  |  |  |  |
| --- | --- | --- | --- |
| Angle 1 | Angle 2 | Angle 3 | Do the angles form a triangle? |
| 90° | 45° | 45° |  |
| 30° | 60° | 90° |  |
| 30° | 45° | 60° |  |
| 30° | 30° | 60° |  |

Investigate

**Work with a partner.**

**4.** Draw another 60° angle on a piece of patty paper. Describe the angles and side lengths of the figure

 you form using 60° angles.

**5.** Draw angles measuring 20°, 70°, 90° on pieces of patty paper.

1. Do the angles form a triangle? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. Can you create more than one triangle that is the same shape with different side lengths? What are the side lengths of you triangle?

Analyze and Reflect

**6.** Refer back to the table in Step 3 of Activity 2. Compare the sum of the angle measures. Describe

 any patterns that are found.

ANSWERSUse angles of different sizes to determine which ones form a triangle.

1. Draw two sets of angles measuring 30°, 45°, 60°, and 90° on different pieces of patty paper.

 Extend the ray so each angle to the edges of the patty paper.

 30° 45° 60° 90°

1. Try to form a triangle with one 90° angle, and two 45° angles. Does it form a right angle?
2. Try to form triangles using the angle measures that are given in the table. Fill in **yes** or **no** in the fourth column of the table.

|  |  |  |  |
| --- | --- | --- | --- |
| Angle 1 | Angle 2 | Angle 3 | Do the angles form a triangle? |
| 90° | 45° | 45° | yes |
| 30° | 60° | 90° | Yes |
| 30° | 45° | 60° | No |
| 30° | 30° | 60° | no |

Investigate

**Work with a partner.**

**4.** Draw another 60° angle on a piece of patty paper. Describe the angles and side lengths of the figure

 you form using 60° angles. The figure is a triangle with three equal angles and three equal side lengths.

**5.** Draw angles measuring 20°, 70°, 90° on pieces of patty paper.

1. Do the angles form a triangle? \_\_\_\_\_\_\_\_yes\_\_\_\_\_\_\_
2. Can you create more than one triangle that is the same shape with different side lengths? What are the side lengths of you triangle? Yes; student answers will vary.

Analyze and Reflect

**6.** Refer back to the table in Step 3 of Activity 2. Compare the sum of the angle measures. Describe

 any patterns that are found. To form a triangle, the sum of the angles must equal 180°