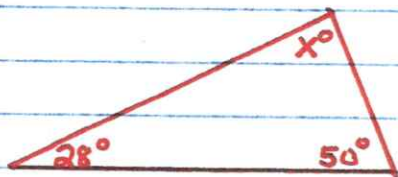


### 12.3 Extension: Angle Measures of Triangles p. 288

The sum of the angle measures of any triangle is  $180^\circ$ .

Find the value of  $x$ . Then classify each triangle.

1.)

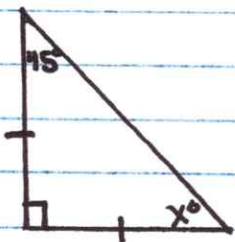


$$x = \underline{102^\circ}$$

obtuse

scalene

2.)



$$x = \underline{45^\circ}$$

right

isosceles

Tell whether a triangle can have the given measures. Write yes or no. If no, change the measure of the first angle to form a triangle.

3)  $40^\circ, 33^\circ, 72^\circ$  no;  $75^\circ$

4)  $76.2^\circ, 81.7^\circ, 22.1^\circ$  yes

5)  $115.1^\circ, 47.5^\circ, 93^\circ$  no;  $39.5^\circ$

6)  $45\frac{2}{3}^\circ, 70^\circ, 63\frac{5}{6}^\circ$  no;  $46\frac{1}{6}$

**12.3** Triangles (continued)

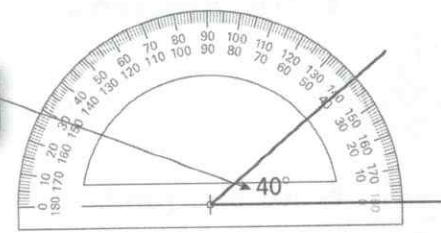
- b. 3 units, 5 units
- c. 2 units, 8 units
- d. 1 unit, 1 unit

**3** **ACTIVITY:** Constructing Triangles Using Angle Measures

Work with a partner. Two angle measures of a triangle are given. Draw the triangle. What is the measure of the third angle? Compare your results with those of others in your class.

- a.  $40^\circ, 70^\circ$       $70^\circ$

Begin by drawing the angle measure of  $40^\circ$ .



- b.  $60^\circ, 75^\circ$       $45^\circ$
- c.  $90^\circ, 30^\circ$       $60^\circ$
- d.  $100^\circ, 40^\circ$       $40^\circ$

**Extension**  
**12.3****Practice (continued)**

Tell whether a triangle can have the given angle measures. If not, change the **first angle measure** so that the angle measures form a triangle.

6.  $25^\circ, 64^\circ, 91^\circ$

yes

7.  ~~$55.5^\circ, 94^\circ, 31.5^\circ$~~

no;  $54.5^\circ$ 

8.  ~~$85^\circ, 64^\circ, 30^\circ$~~

no;  $86^\circ$ 

9.  ~~$33^\circ, 140^\circ, 12^\circ$~~

no;  $28^\circ$ 

10.  $99^\circ, 53^\circ, 28^\circ$

yes

11.  $79^\circ, 54^\circ, 47^\circ$

yes