



**1-112.** Carol: only inside circle #2, Bob: outside both circles, Pedro: only inside circle #1. In order to belong to the intersection of both circles, a person would need to have long hair and study a lot for class.

**1-113. See below.**

- Sandy's probability =  $\frac{2}{4}$ , while Robert's is  $\frac{3}{5}$ . Therefore, Robert has a greater chance.
- Sandy (Sandy's probability = 1 while Robert's is 0)
- Sandy's probability =  $\frac{3}{4}$ , while Robert's is  $\frac{3}{5}$ . Therefore, Sandy is more likely to select a shape with two sides that are parallel.

**1-114. See below.**

- $x = -\frac{9}{33} = -\frac{3}{11}$
- $x = 5$  and  $x = -\frac{3}{2}$
- $x = 1$
- $x = \frac{12}{13}$

**1-115. See below.**

- heart
- square
- hexagon
- Answers vary

**1-116. See below.**

- $(-6, -3)$
- The vertices are  $(6, 2)$ ,  $(2, 3)$ , and  $(5, 6)$
- $(8, -4)$