

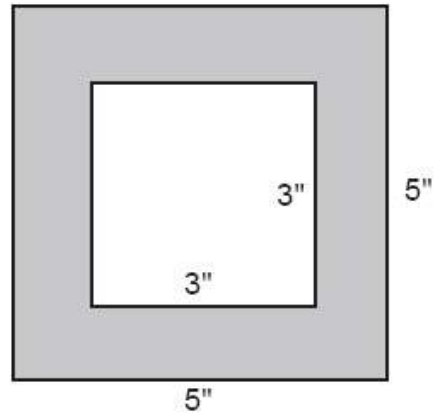
## 28. Percent Covering



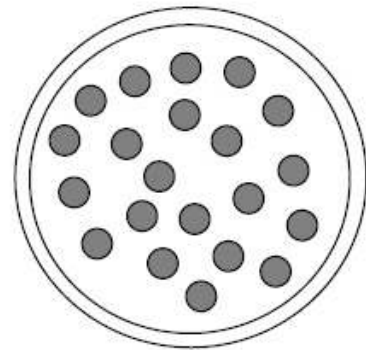
Name: \_\_\_\_\_

If needed, round final answers to nearest percent.

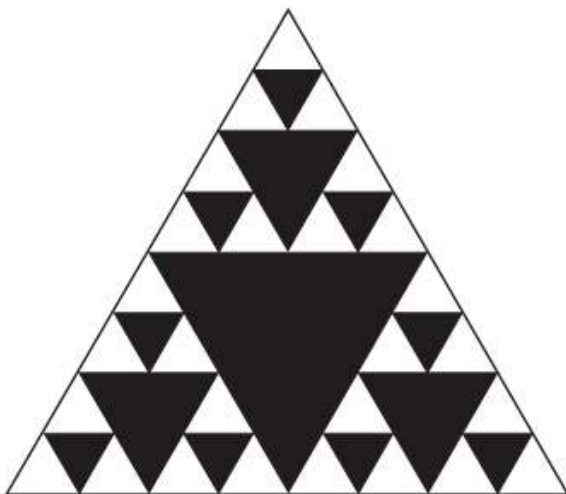
1. What percentage of the 5" x 5" square is shaded?



2. A large circular pizza has a 16-inch diameter. It is covered by circular pepperoni, each with a 2-inch diameter, as shown. None of the pepperoni overlap. What percentage of the pizza's area is covered by pepperoni?



3. What percentage of the equilateral triangle is shaded? Figure is drawn to scale.



**28. Percent Covering (pages 55-56)****1. Answer: 64%**

• Strategy Tip for 1: The shaded area is the 5" x 5" square area minus the 3" x 3" square area.

The area of the 5" x 5" square is  $5^2 = 25 \text{ in.}^2$ .  
 The shaded area is  $5^2 - 3^2 = 25 - 9 = 16 \text{ in.}^2$ .  
 The percentage of the 5" x 5" square that is shaded equals  $16/25 = 0.64 = 64\%$ .

**2. Answer: 33%**

The circular pizza has an 8-in. radius, and it is covered by 21 circular pieces of pepperoni, each with a 1-inch radius.

The pizza area is  $\pi \cdot 8^2 \text{ in.}^2$  and the total area of the pepperoni is  $21 \cdot \pi \cdot 1^2 \text{ in.}^2$ . The percentage of the pizza's area covered by pepperoni is

$$\frac{21 \cdot \pi \cdot 1^2}{\pi \cdot 8^2} = \frac{21 \cdot \pi}{\pi \cdot 64} = \frac{21}{64} \approx 0.33 = 33\%.$$

**3. Answer: 58%**

• Strategy Tip for 3: The shaded triangles have 3 sizes: small, medium, and large. The smallest shaded triangle can be used as the unit of measurement. For example, the medium triangle area equals the area of 4 small triangles.

The shaded area consists of 9 small triangles, 3 medium triangles, and 1 large triangle. Each medium triangle area equals the area of 4 small triangles. The large triangle area equals the area of 16 small triangles. So the shaded area equals  $9 \cdot 1 + 3 \cdot 4 + 1 \cdot 16 = 9 + 12 + 16 = 37$  small triangles. The entire equilateral triangle area equals the area of 64 small triangles. So the percentage of the equilateral triangle that is shaded equals  $37/64 \approx 0.58 = 58\%$ .