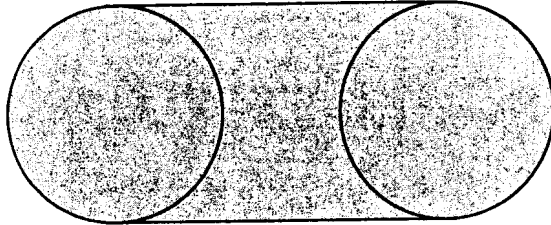




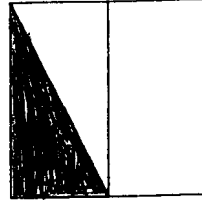
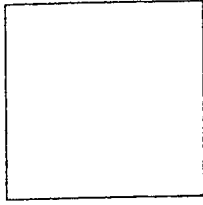
3. In the figure below, the radius of each circle is 5 cm. The length of each of the tangents to the circles is 15 cm.
- a. Find the shaded area enclosed by two semicircles and two tangents to the semicircles as shown below.



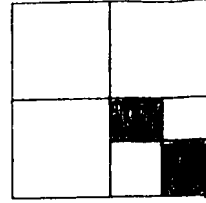
- b. Find the perimeter of the shaded figure.
4. A student says that it is actually impossible to measure an angle, since each angle is the union of two rays that extend infinitely, and therefore continue forever. What is your response?

5. A machine costs \$3450 at present. This is 60% of the cost four years ago. What was the cost of the machine four years ago? Explain your reasoning.
6. Explain why  $\frac{5}{2} \div \frac{1}{3} = \frac{5}{2} \times \frac{3}{1}$ .
7. On a map,  $\frac{1}{3}$  in. represents 5 mi. If New York and Aluossim are 18 in. apart on the map, what is the actual distance between them?
8. In the space provided, write whether each of the following statements is **SOMETIMES**, **ALWAYS**, or **NEVER TRUE**. Then justify your answer.
- a. If  $x \neq 0, y \neq 0$ , and  $\frac{1}{x} < \frac{1}{y}$ , then  $x > y$ . \_\_\_\_\_
- b. If  $x > 0$ , then  $\frac{1}{x} < x$ . \_\_\_\_\_

9. Assume the blank square below represents 1 unit. Answer the following questions under each of the relevant squares, A and B.



A



B

- a. What fraction of the square is shaded?
- b. Write the multiplication sentence that indicates how the shaded fraction is obtained.
10. For each of the following determine if a solution exists. If a solution exists, give it. If a solution does not exist, explain why it does not.
- a. 45% of a graduating class of 250 seniors have jobs. How many seniors have jobs?
- b. What is the number on the number line that is  $\frac{2}{7}$ ths of the way from 0 to 10?
11. Describe at least three properties of the number  $\sqrt{2}$  using the various facts you have studied about real numbers.