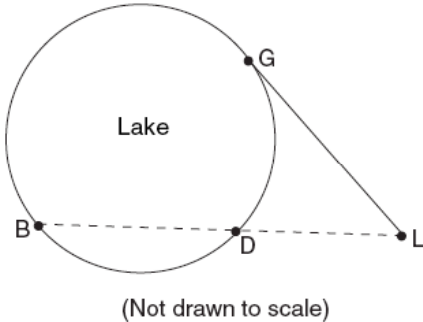
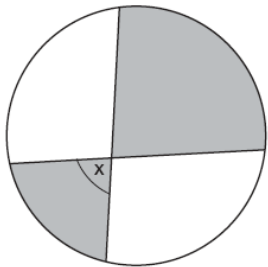


1. In the accompanying diagram, cabins B and G are located on the shore of a circular lake, and cabin L is located near the lake. Point D is a dock on the lake shore and is collinear with cabins B and L . The road between cabins G and L is 8 miles long and is tangent to the lake. The path between cabin L and dock D is 4 miles long. What is the length, in miles, of \overline{BD} ?



1.

2. The accompanying diagram shows a child's spin toy that is constructed from two chords intersecting in a circle. The curved edge of the larger shaded section is one-quarter of the circumference of the circle, and the curved edge of the smaller shaded region is one-fifth of the circumference of the circle. What is the measure of angle x ?



2.

3. Find the middle term of $\left(x^2 + \frac{1}{x}\right)^6$ in simplest form.

4. A set of normally distributed test scores has a mean of 77 and a standard deviation of 6.

- a* What is the probability that a randomly selected score will be between 74 and 86?
b What percent of the test scores fall below a grade of 65?

3.

4.

5. Find all values of x in the interval $0^\circ \leq x < 360^\circ$ that satisfy the equation

$$\sqrt{4 \cos^2 x - 1} - 1 = 0$$

5.

6. The table below, created in 1996, shows a history of transit fares from 1955 to 1995. On the accompanying grid, construct a scatter plot where the independent variable is years. State the exponential regression equation with the coefficient and base rounded to the *nearest thousandth*. Using this equation, determine the predictions that should have been made for the years 1998 and 2006, to the *nearest cent*.

Year	55	60	65	70	75	80	85	90	95
Fare (\$)	0.10	0.15	0.20	0.30	0.40	0.60	0.80	1.15	1.50

