

Name _____

Date _____

End of Module 3 Study Guide

Directions: Show all work for full credit. You may use a calculator.

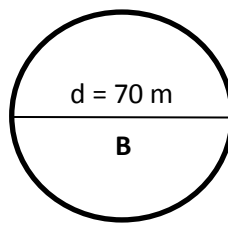
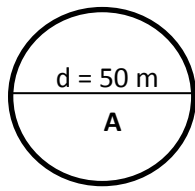
1. Gloria says the two expressions $\frac{1}{4}(12x + 24) - 9x$ and $-6(x + 1)$ are equivalent. Is she correct? Explain how you know.

2. A grocery store has advertised a sale on ice cream. Each carton of any flavor of ice cream costs \$3.79.

a. If Millie buys strawberry ice cream and chocolate ice cream, write an **algebraic expression** that represents the total cost of buying the ice cream. Make sure you declare your variables.

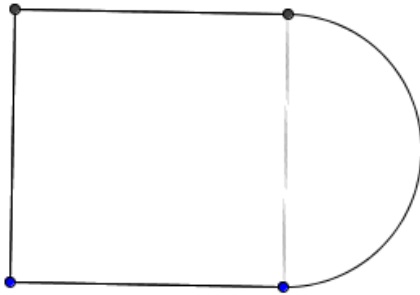
b. Write an equivalent expression for your answer in part (a).

c. Explain how the expressions are equivalent.



3. A new park was designed to contain two circular gardens. Garden A has a diameter of 50 m, and garden B has a diameter of 70 m.
- If the gardener wants to outline the gardens in edging, how many meters will be needed to outline the smaller garden? (**Express as an exact answer in terms of π .**)
 - How much more edging will be needed for the larger garden than the smaller one? (**Express as an exact answer in terms of π .**)
 - The gardener wishes to put down weed block fabric on the two gardens before the plants are planted in the ground. How much fabric will be needed to cover the area of both gardens? (**Express as an exact answer terms of π .**)

4. A play court on the school playground is shaped like a square joined by a semicircle. The perimeter around the entire play court is 182.8 ft., and 62.8 ft. of the total perimeter comes from the semicircle.



$$\text{Circumference}_{\text{semicircle}} = 62.8 \text{ ft}$$

I know the formula for $C_{\text{semicircle}} = \underline{\hspace{2cm}}$ and I can then solve for the radius.

OR

I know that $182.8 - 62.8 = \underline{\hspace{2cm}}$ ft and this represents the part of the perimeter from the square. I also know that there are sides of the square included in this perimeter. Each side of the square represents the diameter of the semicircle.

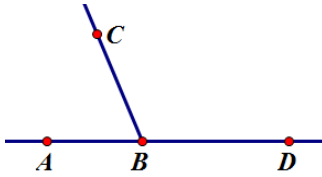
- a. What is the radius of the semicircle? Use 3.14 for π .
- b. The school wants to cover the play court with sports court flooring. Using 3.14 for π , how many square feet of flooring does the school need to purchase to cover the play court?

What is the problem asking me to find?

What formula(s) can I use to find this?

5. Marcus drew two adjacent angles.

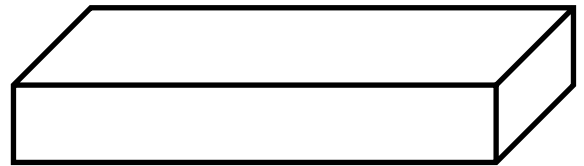
- a. If $\angle ABC$ has a measure one-third of $\angle CBD$, then what is the degree measurement of $\angle CBD$? (Hint: Let $m\angle CBD$ be represented by m)



6. The dimensions of an above-ground, rectangular pool are 25 feet long, 18 feet wide, and 6 feet deep.

- a. How much water is needed to fill the pool?

1. Formula: _____ = _____
2. Substitute numbers: _____
3. Solve (don't forget units)



- b. If there are 7.48 gallons in 1 cubic foot, how many gallons are needed to fill the pool?

$$\frac{7.48 \text{ gallons}}{1 \text{ cubic foot}} * \frac{\text{cubic feet}}{\text{cubic feet}} =$$

To fill the pool, _____ gallons are needed.

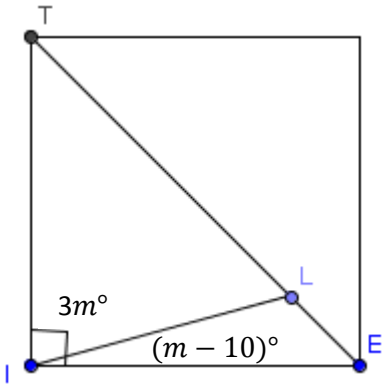
- c. Assume there was a hole in the pool, and 3,366 gallons of water leaked from the pool. How many feet did the water level drop?
First find the equivalent number of cubic feet that 3,366 gallons represents.

Then use that number in your volume calculation. You are solving for 'h', the height of the water represented by the 3,366 gallons.

- d. After the leak was repaired, it was necessary to lay a thin layer of concrete to protect the base and sides of the pool. Calculate the area to be covered to complete the job.

How many faces (sides and bases) of the pool will be covered by concrete? _____

7. Gary is learning about mosaics in art class. His teacher passes out small square tiles and encourages the students to cut up the tiles in various angles. Gary's first cut tile looks like this:



a. Write an equation relating $\angle TIL$ with $\angle LIE$.

b. Solve for m .

c. What is the measure of $\angle TIL$?

d. What is the measure of $\angle LIE$?