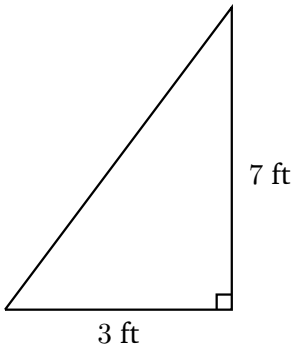
Name: _____
MATH 100
Fall 2023
HW 3: Due 09/18

"Fire can't go through doors, stupid. It's not a ghost."
–Ben Chang, Community

Problem 1. (10pt) Consider the triangle given below:

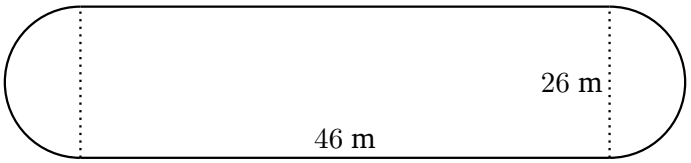


(a) Find the perimeter of the triangle.

(b) Find the area of the triangle.

(c) If the lengths of the legs in the triangle were mislabeled as being in feet when they should have been in meters, convert your answer in (b) to square meters.

Problem 2. (10pt) Consider the 'track' shown below:



(a) Find the perimeter of the track.

(b) Find the area of the track.

(c) If you scale the track's size by a factor of two, what is the new perimeter and area?

(d) Suppose you were going to tile the interior rectangular portion of the track with special 2 m $\times$ 2 m tiles. How many would you need?

Problem 3. (10pt) A whiskey barrel is approximately cylindrical in shape. Suppose that an American Oak whiskey barrel is 18 in across and 30 in tall.

(a) Estimate the volume of the barrel.

(b) If one cubic inch is 16.3871 ml, find the volume of the barrel in milliliters.

(c) You know expensive whiskeys can fetch $450 per bottle, i.e. 750 ml. Use this to estimate the value of such a barrel filled with expensive whiskey if the barrel itself also has a value of $250.