

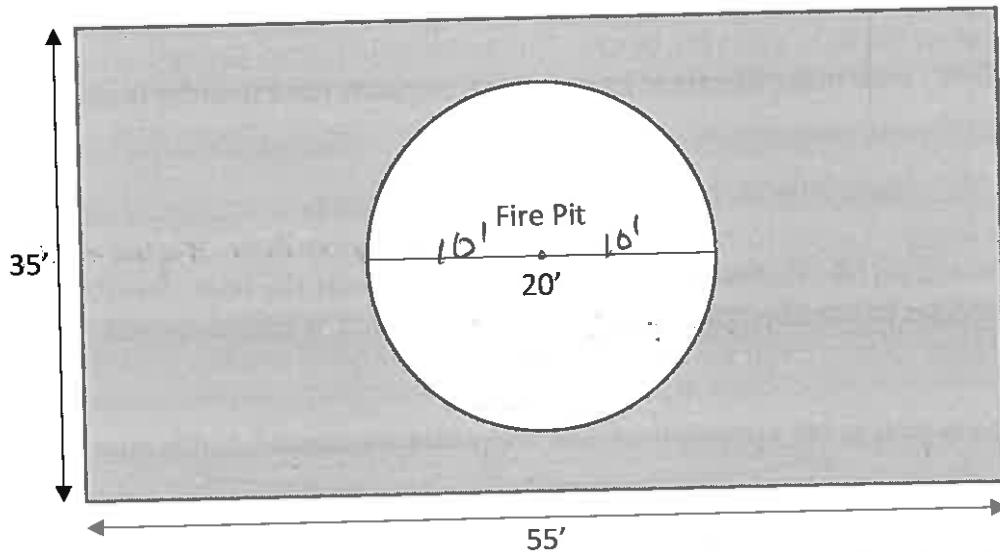
Lesson 2: Area/Volume Addition and Subtraction

Our next topic will look at how to find the area, surface area, and volume of compound shapes that do not conform EXACTLY with the given formulas.

Make sure that you have your formula sheets handy before you begin this lesson.

Example 1: Area subtraction

You need to order grass to put in your backyard. You are designing your backyard to have a large round fire pit in the middle of the yard. The diagram below (not to scale) shows your plan, and the shaded section is where you need grass.



Determine the square footage of your yard that needs to be covered in grass.

$$\text{Area of Grass} = \text{Area of backyard (rectangle)} - \text{area of Fire Pit (circle)}$$

$$\begin{aligned} \text{Area of Backyard} &= \text{Length} \times \text{width} \\ &= 55' \times 35' \\ &= 1925 \text{ ft}^2 \end{aligned}$$

$$\begin{aligned} \text{Area of Fire Pit} &= \pi r^2 \\ &= \pi (10)^2 \\ &= 314.1593 \text{ ft}^2 \end{aligned}$$

$$\begin{aligned} \text{radius} &= \frac{1}{2} \text{ of the diameter} \\ &= \frac{1}{2} \times 20' \\ &= 10' \end{aligned}$$

$$\begin{aligned} \therefore \text{Area of grass} &= 1925 \text{ ft}^2 - 314.1593 \text{ ft}^2 \\ &= 1610.84 \text{ ft}^2 \end{aligned}$$