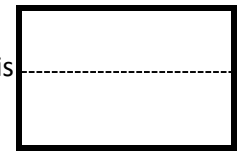
MGF 1106 Geometry & Conversion Examples

Application #1. Buying Sod for your yard

Your yard is 30 feet by 60 feet and you need to re-sod the entire yard. You 30 feet found sod being sold for $15 per yard (length of strip) and each strip is 12 inches wide. How many strips would you need? How much will it cost you? 60 feet



Step one: Determine how many strips you will need.

Your yard will be covered by long strips of sod. You need to know how many strips you will need. Since your yard is 30 feet wide and each strip is 12 inches wide (1 foot) you will need 30 strips each of which are 60 feet long.

Step two: Convert the length of your yard to yards.

$$\textbf{length of your yard}: \frac{60\ feet}{1} \quad \frac{1\ yard}{3\ feet} x = 20\ yards\ is\ the\ length\ of\ your\ yard$$

Step three: Determine the cost per strip.

You need 30 strips to cover the width of your yard. Each strip needs to be 20 yards long. The cost of a strip is $15 per yard.

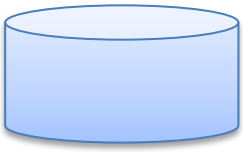
$$\textbf{Cost per strip}: \frac{20\ yards\ per\ strip \quad \$15}{x \quad = \$300\ 1 \quad 1\ yard}$$

Step four: Determine the final cost.

$$Total\ cost: 20\ strips\ x\ \$300\ per\ strip = \$6000$$

Application #2. Filling your pool

You have a circular above ground pool in your yard. It measures 10 ft in diameter and is 4 feet deep. The city will charge you $.17 for each gallon. 1 gallon equals .13 ft^3. How much will it cost to fill, give the answer to two decimal places?



4 feet

10 feet

Step one: Determine the volume of your pool.

If your pool is 10 feet in diameter, the radius is equal to $\frac{1}{2}\ diameter = 5\ ft.$

$$\textbf{Volume} = \pi r^2 h = \pi(5\ ft)^2\ 4ft = 100\pi\ ft^3 = 314.16\ ft^3$$

Step two: Determine how much water it will take.

$$\textbf{1 } \boldsymbol{gallon}$$

$$\boldsymbol{Amount\ of\ water}\text{: } \mathbf{314.16}\ \boldsymbol{ft^3}\ \boldsymbol{x}\ \frac{\qquad}{\mathbf{1}\ \boldsymbol{ft_3}} = \mathbf{2416.61}\ \boldsymbol{gallons}$$

Step three: Determine the cost.

$$\boldsymbol{Cost}\text{: } \mathbf{2416.61}\ \boldsymbol{gallons}\ \boldsymbol{x} = \frac{\$.\ \mathbf{17}}{\mathbf{1}\ \boldsymbol{gallons}} = \$\mathbf{410.82}$$