

11-6**Real-Life Career Activity*****Landscape Designer***

Landscape designers use their knowledge of plants to design gardens. They need to know which plants will thrive in the garden, how to take care of them, and how to arrange them. The garden must complement the architecture and suit the people who will enjoy it.

Once landscape designers have designed beds for the plants, they can calculate the number of plants needed to fill the bed. They can use the formula below to calculate how many plants are needed to fill a circular bed.

$$t = \pi nr^2$$

In this formula, t is the total number of plants needed, n is the number of plants in each square foot, and r is the radius of the bed in feet. Use 3.14 for π .

Suppose a landscape designer wants to fill a circular bed of radius 5 feet with marigolds. The designer can plant four marigolds in each square foot. Calculate how many marigolds the designer will need to fill the bed.

$$\begin{aligned} t &= \pi nr^2 \\ &= 3.14 \times 4 \times 5^2 \\ &= 314 \end{aligned}$$

The landscape designer will need 314 marigolds.

Solve.

1. Calculate how many pansies a landscape designer will need to fill a circular bed of radius 10 feet, if two pansies will fit in each square foot.
2. A landscape designer bought 150 marigolds. If four marigolds fit in each square foot, does the designer have enough marigolds for a circular bed of radius 4 feet?

