6.RP Dana's House

Alignments to Content Standards: 6.RP.A.3

Task

The lot that Dana is buying for her new one story house is 35 yards by 50 yards. Dana’s house plans show that her house will cover 1,600 square feet of land. What percent of Dana’s lot will not be covered by the house? Explain your reasoning.

Solutions

Solution: Convert the lot dimensions to feet

\[35 \text{ yards} \times \frac{3 \text{ feet}}{1 \text{ yard}} = 105 \text{ feet}\]

\[50 \text{ yards} \times \frac{3 \text{ feet}}{1 \text{ yard}} = 150 \text{ feet}\]

So the area of the entire lot is \(105 \times 150 = 15,750\) square feet.

Therefore the percent of the lot NOT covered by Dana’s house will be

\[
\frac{15,750 - 1600}{15,750} \approx 0.898 \approx 90\%.
\]

Solution: Convert the house area to square yards

\[\frac{15,750}{1\text{ yard}^2} \times \frac{3\text{ feet}^2}{1\text{ yard}^2} = 15,750 \text{ square feet} \times \frac{3}{1} = 15,750 \text{ square yards}\]
1 yard = 3 feet,

so

1 square yard = 3 feet × 3 feet = 9 square feet.

Therefore, Dana's house covers

1600 square feet × \(\frac{1 \text{ square yard}}{9 \text{ square feet}}\) \(\approx 177.8\) square yards.

On the other hand, Dana's lot is 35 yards × 50 yards = 1,750 yards.

The percentage of Dana's lot NOT covered by her house is:

\[
\frac{1,750 - 177.8}{1,750} \approx 0.898 \approx 90\%
\]