

## Review Exercise Set 31

Exercise 1: Convert 37 feet into yards.

Exercise 2: Suppose you have a board that is 70 inches in length, but you want to express this length in terms of both feet and inches. What would be the board's measurement in feet and inches?

Exercise 3: Find the sum of 3 feet 7 inches and 2 feet 9 inches.

Exercise 4: Subtract 2 feet 9 inches from 3 feet 7 inches.

Exercise 5: Find the quotient of 7 feet 6 inches and 3.

## Review Exercise Set 31 Answer Key

Exercise 1: Convert 37 feet into yards.

Identify conversion factor to be used

$$3 \text{ feet} = 1 \text{ yard}$$

Setup the conversion factor into fraction form and solve

$$37 \text{ feet} \times \frac{1 \text{ yard}}{3 \text{ feet}} = \frac{37 \text{ yards}}{3} = 12\frac{1}{3} \text{ yards}$$

When writing the conversion factor, you will place what you want to get on top and what you are trying to convert on the bottom. In this problem we want yards and are trying to convert feet, so the yards will go on top and the feet will go in the bottom.

Exercise 2: Suppose you have a board that is 70 inches in length, but you want to express this length in terms of both feet and inches. What would be the board's measurement in feet and inches?

Identify conversion factor to be used

$$1 \text{ foot} = 12 \text{ inches}$$

Since we want the answer in feet and inches, setup the problem using long division

$$\begin{array}{r} 5 \text{ feet} \\ 12 \text{ inches} \overline{) 70 \text{ inches}} \\ \underline{-60 \text{ inches}} \\ 10 \text{ inches} \end{array}$$

**The board's length is 5 feet 10 inches.**

Knowing that 1 foot is equal to 12 inches we can divide the 70 inches by 12 to determine the quotient and the remainder. The quotient will be the number of feet and the remainder will be the number of inches.

Exercise 3: Find the sum of 3 feet 7 inches and 2 feet 9 inches.

First, combine the like unit measurements

$$\begin{array}{r} 3 \text{ feet } 9 \text{ inches} \\ + 2 \text{ feet } 7 \text{ inches} \\ \hline 5 \text{ feet } 16 \text{ inches} \end{array}$$

Since we have more than 12 inches in our answer we can convert it into feet by subtract 12 from the inches column and add 1 to the feet column.

$$\begin{array}{r} 5 \text{ feet } 16 \text{ inches} \\ +1 \text{ foot } -12 \text{ inches} \\ \hline 6 \text{ feet } 4 \text{ inches} \end{array}$$

**The sum would be 6 feet 4 inches.**

Exercise 4: Subtract 2 feet 9 inches from 3 feet 7 inches.

$$\begin{array}{r} 3 \text{ feet } 7 \text{ inches} \\ - 2 \text{ feet } 9 \text{ inches} \\ \hline \end{array}$$

We cannot subtract the inches right now because the 9 is larger than 7, so we must convert one foot into inches by subtracting one foot away from the 3 feet and adding it as 12 inches to the 7 inches.

$$\begin{array}{r} 3 \text{ feet } 7 \text{ inches} \\ -1 \text{ foot } +12 \text{ inches} \\ \hline 2 \text{ feet } 19 \text{ inches} \end{array}$$

Now we can perform the subtraction by replacing the 3 feet 7 inches with 2 feet 19 inches.

$$\begin{array}{r} 2 \text{ feet } 19 \text{ inches} \\ - 2 \text{ feet } 9 \text{ inches} \\ \hline 0 \text{ feet } 10 \text{ inches} \end{array}$$

**The correct answer would be 10 inches.**

Exercise 5: Find the quotient of 7 feet 6 inches and 3.

First setup the problem in long-division format and then divide 3 into the 7 feet.

$$\begin{array}{r} 2 \text{ feet} \\ 3 \overline{) 7 \text{ feet } 6 \text{ inches}} \\ \underline{-6 \text{ feet}} \\ 1 \text{ foot } 6 \text{ inches} \end{array}$$

Now we need to convert the 1 foot into inches so that it can be combined with the 6 inches. To do this, we will subtract 1 foot and add 12 inches.

$$\begin{array}{r} 2 \text{ feet} \\ 3 \overline{) 7 \text{ feet } 6 \text{ inches}} \\ \underline{-6 \text{ feet}} \\ 1 \text{ foot } 6 \text{ inches} \\ \underline{-1 \text{ foot } + 12 \text{ inches}} \\ 18 \text{ inches} \end{array}$$

Finally, divide the 3 into the 18 inches.

$$\begin{array}{r} 2 \text{ feet } 6 \text{ inches} \\ 3 \overline{) 7 \text{ feet } 6 \text{ inches}} \\ \underline{-6 \text{ feet}} \\ 1 \text{ foot } 6 \text{ inches} \\ \underline{-1 \text{ foot } + 12 \text{ inches}} \\ 18 \text{ inches} \\ \underline{-18 \text{ inches}} \\ 0 \end{array}$$

**The quotient would be 2 feet 6 inches.**