

Convert Customary Units of Length

Lesson 2

ESSENTIAL QUESTION ?

How can I use measurement conversions to solve real-world problems?



Math in My World



Example 1

For many of the thrill rides at amusement parks, riders must be at least 48 inches tall. Cheng is 4 feet tall. Is he tall enough to ride a thrill ride at an amusement park?

Convert 4 feet to inches.

Since 1 foot = 12 inches, multiply 4 by 12.

$$\begin{array}{r} 1 \quad 2 \\ \times \quad 4 \\ \hline 4 \quad 8 \end{array}$$

So, 4 feet = 48 inches.

Is Cheng tall enough to ride the thrill rides? yes

Check Use division to check your answer. 48 $\div 4 = 12$



The units of length most often used in the United States are the inch, foot, yard, and mile. These units are part of the **customary system**.

Key Concept Customary Units of Length

1 foot (ft) = 12 inches (in.)

1 yard (yd) = 3 ft or 36 in.

1 mile (mi) = 5,280 ft or 1,760 yd

When you **convert** measurements, you change from one unit to another. To convert a larger unit to a smaller unit, multiply. To convert a smaller unit to a larger unit, divide.

Example 2

Convert 42 inches to feet.

Since you are changing a smaller unit to a larger unit, divide.

$$\begin{array}{r} \overline{)42} \\ \underline{36} \\ 6 \end{array}$$

3 R 6

Interpret the remainder.

One Way Write the remainder in inches.

The remainder 6 means there are 6 inches left over.

42 inches = 3 feet 6 inches

Another Way Write the remainder as a fraction or decimal.

The fraction of a foot is $\frac{6}{12}$ or $\frac{1}{2}$.

42 inches = $3\frac{1}{2}$ feet

So, 42 inches is equal to 3 feet 6 inches, or $3\frac{1}{2}$ feet or 3.5 feet.

Guided Practice



1. Complete 60 in. = \square ft

$$60 \div 12 = \underline{5}$$

So, 60 inches equals 5 feet.

2. Complete 16 yd = \square ft

$$16 \times 3 = \underline{48}$$

So, 16 yards equals 48 feet.

Talk MATH

Explain how to convert units from feet to inches.



Name _____

Independent Practice

Complete.

3. 72 in. = 6 ft

4. 19 yd = 684 in.

5. 40 in. = $3\frac{1}{3}$ ft

6. 7,920 ft = $1\frac{1}{2}$ or 1.5 mi

7. 6 yd = 216 in.

8. 26,400 ft = 5 mi

9. 9 ft = 108 in.

10. 22 ft = 7 yd 1 ft

11. 51 in. = 4 ft 3 in.

Compare. Use $<$, $>$, or $=$ to make a true statement.

12. 24 in. $<$ 2 ft 3 in.

13. 7 yd $>$ 20 ft

14. 2 mi $>$ 3,500 yd


15. $11\frac{1}{2}$ ft $<$ 4 yd

16. 72 in. $=$ 2 yd

17. 5.5 yd $>$ 192 in.



Problem Solving

- 18. PRACTICE**  **Draw a Conclusion** Dana ran $\frac{1}{4}$ mile. Trish ran 445 yards. Who ran the greater distance? Explain.
Trish; $\frac{1}{4}$ mi equals 440 yd and $445 > 440$.

- 19.** Carlos is 63 inches tall. What is his height in feet?
 $5\frac{1}{4}$ ft or 5.25 ft

What is his height in feet and inches?

5 ft 3 in.

- 20.** The U.S.S. Harry Truman is an aircraft carrier that is 1,092 feet long. Find the length in yards.

364 yd


- 21.** A bull had horns that measured 98 inches across. What is this length in feet and inches?

8 ft 2 in.

What is this length in feet?

$8\frac{1}{6}$ ft

HOT Problems

- 22. PRACTICE**  **Use Number Sense** There are 320 rods in a mile. Find the length of a rod in feet.

$16\frac{1}{2}$ ft or 16.5 ft

- 23. ?** Building on the Essential Question Explain, using an example, why you need to multiply when converting from a larger unit to a smaller unit.

Sample answer: There are a greater number of inches in 3 feet

than there are feet in 3 feet.

My Work



MY Homework

Lesson 2

Convert Customary Units of Length

Homework Helper



Need help? connectED.mcgraw-hill.com

The average height of a female giraffe is 15 feet.
What is the average height in yards?

Convert 15 feet to yards.

Since 3 feet = 1 yard, divide 15 by 3.

$$\begin{array}{r} 5 \\ 3 \overline{) 15} \\ \underline{- 15} \\ 0 \end{array}$$

So, 15 feet = 5 yards.

The average height of the female giraffe is 5 yards.

Check Use multiplication to check your answer.

$$5 \times 3 = 15$$

Practice

Complete.

1. 5 mi = 8,800 yd

2. 7 yd = 252 in.

3. 150 in. = $4\frac{1}{6}$ yd

4. 110 in. = 9 ft 2 in.

5. 8 yd = 288 in.

6. 13,200 ft = 2.5 mi

