2.1

Using Imperial Units for Length

Try These

i) $\frac{1}{2} \times 10 =$ 5

ii) $\frac{1}{4} \times 24 =$ 6

iii) $\frac{1}{2} \times 1760 =$ 880

iv) $\frac{3}{4} \times 5280 =$ 3960

$\frac{1}{2} \times \frac{10}{1} = \frac{10}{2}$

$10 \div 2$

$\frac{1}{4} \times 24$

$24 \div 4$

The Imperial System of Measurement evolved from a system used in ancient Rome based on **referents** from the human body and everyday activities. For example,

- 1 inch—the width of a person's thumb
- 1 foot—the distance from a person's heel to the big toe
- 1 yard—the length of a person's stride

Often these units were based on an important person, like a king. This resulted in units that were different in different regions. In 1824, the units were standardized and became the Imperial System of Measurement.

Imperial Units for Length

Unit	Relationships
inch (in. or ″)	
foot (ft or ′)	12 inches = 1 foot
yard (yd)	3 feet = 1 yard
mile (mi)	1760 yards = 1 mile

1. Write the four units of imperial measure above in order from largest unit to smallest unit.

mile yard feet inches

2 How many inches are in 1 yard?

1 yd = 3 ft and 1 ft = 12 in.

3 ft/yd × 12 in./ft = 36 inches in 1 yard

3 How many feet are in 1 mile?

1 mi = 1760 yd and 1 yd = 3 ft

3 ft/yd × 1760 yd/mi = 5280 feet in 1 mile

Example 1

Colin is 5′ 11″ tall. How tall is Colin in inches?

5′ 11″

5 feet 11 inches

Example 1

Colin is 5′ 11″ tall. How tall is Colin in inches?

Solution

A. How many inches are there in 5 ft?

1 ft = 12 in., so in 5 ft there are

5 ft × 12 in./ft = 60 in.

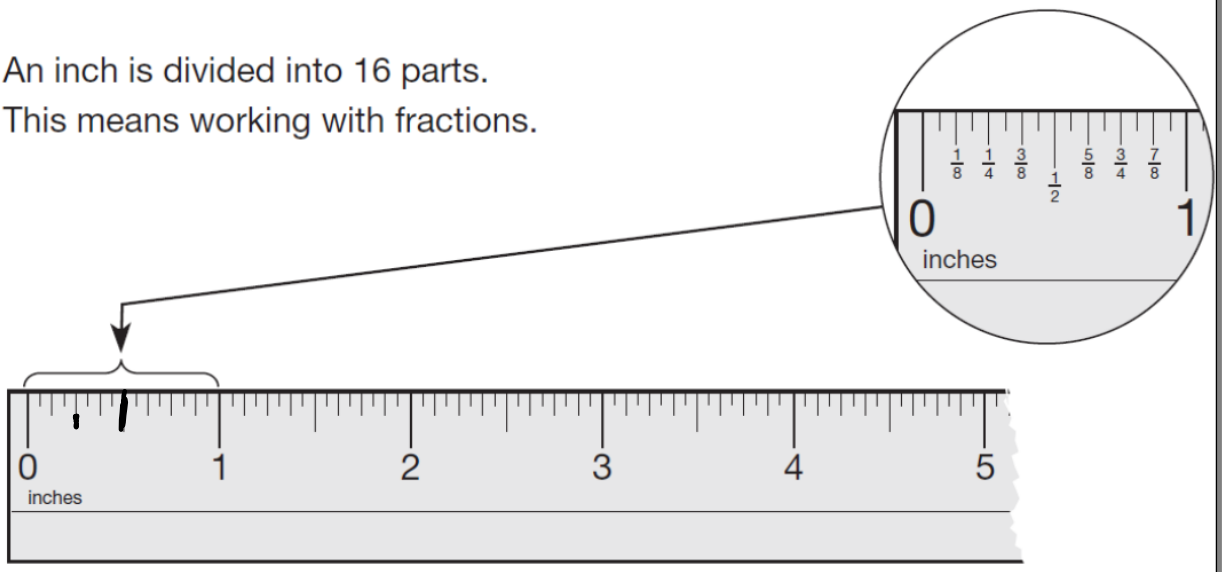
Example 1

Colin is 5′ 11″ tall. How tall is Colin in inches?

B. What is Colin's height in inches?

60 in. + 11 in. = 71 in.

An inch is divided into 16 parts.
This means working with fractions.



$70\frac{1}{4}''$

12

5.....

?

60 inches + ____

60 inches + $10\frac{1}{4}''$

$5'\ 10\frac{1}{4}''$

Example 2

Sandy is building a staircase with eight steps. Each step is $7\frac{1}{4}$ inches high. What is the height of this staircase in feet and inches?

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Solution

A. Consider the whole numbers first. 7 in. × 8 = 56 in.

Example 2

Sandy is building a staircase with eight steps. Each step is $7\frac{1}{4}$ inches high. What is the height of this staircase in feet and inches?

B. Consider the fraction next. 1/4 in. × 8 = 2 in.

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Sandy is building a staircase with eight steps. Each step is $7\frac{1}{4}$ inches high. What is the height of this staircase in feet and inches?

C. What is the total height? 56 in. + 2 in. = 58 in.

Example 2

Sandy is building a staircase with eight steps. Each step is $7\frac{1}{4}$ inches high. What is the height of this staircase in feet and inches? 12 x 4 = 48

D. What is this height in feet and inches?

58 in. ÷ 12 = 4 remainder 10

So, the height of the staircase is 4 ft 10 in.

Practice: Pg 40 # 1 - 10