

5.6

Volume in Different Systems

Try These

Circle the metric units. Underline the imperial units.

cubic yard

○ cubic centimetre

cubic inch

cubic mile

For a camping trip, Willow bought a backpack that has a volume of 4577 cu in. What is its volume in cubic centimetres?

SI to Imperial
1 cm ³ ≐ 0.06 cu in.
1 m ³ ≐ 1.31 cu yd
1 km ³ ≐ 0.24 cu mi

Imperial to SI
1 cu in. ≐ 16.39 cm ³
1 cu ft ≐ 28.32 dm ³
1 cu yd ≐ 0.76 m ³
1 cu mi ≐ 4.17 km ³



1 What relationship will you use? 1 cu in. ≐ 16.39 cm³

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2 What is the volume of the backpack?

4577 cu in. × 16.39 cm³/cu in. ≐ 75 017.03 cm³

The backpack has a volume of about 75 017 cm³.

Example

Matt is the manager of an arena. He wants to buy 14 m^3 of sand to create beach volleyball courts in the arena after the skating season ends. How many cubic yards of sand does he need?

Solution

How many cubic yards are there? 1 $\text{m}^3 \doteq$ 1.31 cu yd

$$\frac{? \text{ cu yd}}{14 \text{ m}^3} \doteq \frac{\boxed{1.31} \text{ cu yd}}{1 \text{ m}^3}$$

$$\underline{14} \times \frac{? \text{ cu yd}}{14 \text{ m}^3} \doteq \frac{\boxed{1.31} \text{ cu yd}}{1 \text{ m}^3} \times \underline{14}$$

$$? \doteq \frac{\boxed{18.34}}{1}, \text{ or } \underline{18.34} \text{ cu yd}$$

The volume is 18.3 cu yd, to one decimal place.