

Converting Rates

Definition	Example 1	Example 2
A ratio that compares quantities measured in different units is called a rate .		
A unit rate is a rate with a denominator of 1 unit.		
A conversion factor is a ratio of two equivalent measures in different units. <i>It is always equal to 1.</i>		

Compare Unit Rates

Ex. 7 You are shopping for T-shirts. Which store offers the best deal?

Store A: \$25 for 2 shirts Store B: \$45 for 4 shirts Store C: \$30 for 3 shirts

Words

You Try 8 Bellingham, Washington, had an area of $25.4mi^2$ and a population of 74,547 during one year. Bakersfield, California, had an area of $113.1mi^2$ and a population of 295,536 during the same year. Which city had a greater number of people per square mile?

Common Conversions

Time	1h = 60min = 3600s; 1min = 60s; 1 day = 24h; 1 week = 7 days; 1 year = 52 weeks = 365 days
Distance	1 mi = 760yd = 5280ft; 1 yd = 3 ft; 1m = 3.28ft
Volume	1 liter = 1000mL; 1 gal = 3.785L = 3785mL = 128 fl oz; 1 mL = 0.0338 fl oz

Convert 1 Unit

<u>Ex. 1</u> How many hours is 330 min?	<u>Words</u>
<u>Ex. 2</u> How many feet is 50 yd?	<u>You Try 3</u> How many gallons is 400 liters?

Convert Rates (2 Units)

<u>Ex. 4</u> A student ran a 50-yd dash in 5.8s. What is her speed in miles per hour (mi/h)?
<u>Words</u>
<u>Ex. 5</u> A car is traveling at a speed of 55mi/h. What is the car's speed in ft/min?
<u>You Try 6</u> A tank is filling at a rate of 40gal/min. What is the rate in mL/s?
<u>Key Idea for Conversions</u> We can multiply by the conversion factor _____ _____ because the conversion factor is really just _____. Make sure _____!!!!!!!!!!!!!!!!!!!!