

Were you comparing two things with the same units or different units?

Heart beats in 20 seconds

Jumps in 15 seconds

Number of times saying the alphabet in 30 seconds.

When we compare two things with **different units**, it is called a **rate**.

For example, # of heart beats in 20 seconds is a rate.

We can write this as # of heart beats/20 seconds. This is read as # of heart beats per 20 seconds.

These are all examples of rates:

Anna drives 200 km in 2 hours.

Matt earns \$11 per hour at his job.

There are 12 candies per bag.

Carrots cost \$2.50 for one 2lb bag.

Are rates similar to ratios?

Yes! A rate is a type of ratio.

We are still comparing quantities of things, only this time they are measured in different units.

** Make sure you include the units when writing rates, since they are different.

Often times, we express a rate as a **unit rate**.

Unit rate: a rate that **compares a quantity to 1 unit**. (the second term is 1)

Examples

The cost of **1 apple** is **\$0.50** (\$0.50/apple)

Emma can run **10 km** in **1 hour** (10km/hr)

To express a rate as a unit rate you have to make the second term 1.

Example: Express each rate as a unit rate.

Emma earns \$60 when she babysits for 5 hours.

Kate types 400 words in 5 minutes.

Express as a unit rate

A factory produces 250 packages of cookies in 3 minutes.

A bag of 15 apples costs \$4

Sometimes you will have to convert your units.

Example: Emma drives at an average of 100km/hr on the highway. What is this speed in metres per second?

In the activity, how did you estimate the heart rate (or jumps, or saying the alphabet) for one minute?

To Do:

- Worksheet: *Introduction to Rates* → **pass this in when finished**
- Textbook questions: pg. 299 #4, 5, 8, 9, 18
- The activity from the beginning of class does not need to be passed in