A **ratio** is a comparison of quantities measured in the same units. A ratio can be written in the form 3:6 or like a fraction . Like fractions ratio’s can be reduced.

**Calculators allowed when necessary today**

**Example 1** Simplify each:

 a) 20 : 24 b) 21 : 15 c) 10 : 25 : 45

**Example 2** A 350 mL can of concentrated frozen OJ is mixed with 1050 mL of water.

 a) Write a ratio in simplest form to compare the amount of OJ concentrate to water.

 b) Write a ratio in simplest form to compare the amount of concentrate to total juice.

 c) How much frozen concentrate is needed to make 1200 mL (or 1.2L) of juice?

**Example 3** If you had 300 Valentines jellybeans (red, white, and pink) and the ratio of the red to white to pink was 5:2:3. How many of each colour is there?

A **rate** compares quantities that are measured in different units.

A **unit** **rate** or **rate of change** describes how many units of the first type of quantity correspond to one unit of the second type of quantity.

**Examples:** kilometres per hour,

 cost per item,

earnings per week,

**Example 4**  Calculate the unit rate for each:

1. A car travelled 360 km in 4½ hours.
2. Ryan typed 500 words in 12 minutes.
3. You made $170 in 20 hours.

**Example 5** The table below shows the price per case of water at different stores. Evelyn is buying 120 bottles of water. At which store should Evelyn buy her water to pay the least? How much would it cost? **(EQAO)**

|  |  |  |
| --- | --- | --- |
| Store | Price per case | # of 500 mL bottles per case |
| Cheapies | $1.75 | 8 |
| Food smart | $2.25 | 12 |
| Variety Foods | $4.59 | 20 |
| Super Grocers | $4.99 | 24 |

Grade 9 Assessment of Mathematics, February 2014 **Open-Response**

**Guzzling Gas**

David and Shaunese each take a 450 km trip.

* David drives a car and uses 7 L of gas per 100 km
* Shaunese drives a truck and uses 12 L of gas per 100 km.

If gas costs $1.23/L, how much more will it cost Shaunese than David to drive 450 km? Show your work.