Numbers, Operations and Relationships

Rate and Ratio Memo (Grade 7 – Term 1)

1. a) rate – is the ratio of two different items that have different measuring units. For example, km/hr is kilometres per hour.

    b) ratio – is the comparison of the same thing with different types. For example, the ratio of red marbles to blue marbles.

2. a) rate   b) ratio

    c) rate   d) ratio

    e) ratio

3. a) 450 km in 4 hours   b) R100 for 100g of coffee

        = 112.5km/hr   = R1/gram

    c) 300kw of electricity in 6 hours   d) 12 dogs washed in 4 hours

        = 50kw/hr   = 3 dogs/hr

    e) 50 litres of petrol over 750km. (rate is litres/100km)

        $= 6\frac{2}{3}$ litres/100km

4. a) 8 girls for every 16 dresses = 1:2 girl: dresses

    b) 5 boys for 15 soccer balls = 1:3 boy: soccer balls

    c) 14 red skittles and 21 green skittles. = 2:3 red: green

    d) Joe invests R100 while Bob invests R50 = 2: 1 Joe: Bob

    e) 60 cashew nuts for 40 macadamia nuts. 3:2 cashew nuts: macadamia nuts

5.   a)   The rate is 15km per litre of petrol.

That means that the car can travel 20 x 15km = 300km with 20 litres of petrol.

b)   1 chocolate costs R40 ÷ 10 = R4.

That means that 30 chocolates will cost 30 x R4 = R120.

c)   Rate is 5 pink Smarties in 1 box

That means that in 6 boxes we would have 6 x 5 = 30 pink Smarties

d)   The rate is R5 per 6 suckers.

There are 72 ÷ 6 = 12 groups of suckers, so that means that it would cost 12 x R5 = R60 to buy 72 suckers.

e)   The rate is 30 gloves in 1 day.

That means that the doctor would use 30 x 21 = 630 sterile gloves in 21 days.

6.   a)   Total = 35   So boys = 35 – 15 = 20

The ratio of boys: girls is 20:15

The simplified ratio is 4:3   (divide both sides by 5)

b)   Ratio of red: green is 3:2

$$x : 10$$

To get from 2 to 10 we multiply by 5, so that means $x = 3 \times 5 = 15$

There will be 15 red jelly beans in the packet.

c)   For every cat adopted out of the shelter, two dogs are adopted. If 12 animals (cats and dogs) were adopted from the shelter, how many cats and how many dogs were adopted?

Ratio of cats to dogs is 1:2, so a group of adoptees would be 3

Total animals is 12

This means 12 ÷ 3 = 4 sets of adoptees.

That means 4 x 1 = 4 cats were adopted, and 4 x 2 = 8 dogs were adopted.

d) The ratio is 2: 1 and each of these will be divided by 2 for a cup half (half means divide by 2) of the normal size)

This means 1 spoon of sugar and ½ a spoon of coffee.

e) The ratio is 2: 1

If she triples her recipe, she needs to multiply each ingredient by 3.

That means that she will need 2 x 3 = 6 cups of flour and 1 x 3 = 3 cups of sugar.