Numbers, Operations and Relationships

Rate and Ratio (Grade 7 – Term 1)

1. Give the definition of the following terms in your own words:

   a) rate   b) ratio

2. Say whether the following descriptions are a rate or a ratio.

   a) Driving 300km in 3 hours

   b) There are 20 boys and 15 girls in a class.

   c) It costs R16.00 for 2 litres of coke.

   d) For every 10m climbed up a mountain, the climbers travel 3m to the right.

   e) A mixture of nuts contains 60% cashews, 25% macadamia nuts and 15% almonds.

3. Simplify the following rates:

   a) 450 km in 4 hours

   b) R100 for 100g of coffee

   c) 300kw of electricity in 6 hours

   d) 12 dogs washed in 4 hours

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

4. Simplify the following ratios:

   a) 8 girls for every 16 dresses

   b) 5 boys for 15 soccer balls

   c) 14 red skittles and 21 green skittles.

   d) Joe invests R100 while Bob invests R50.

   e) 60 cashew nuts for 40 macadamia nuts.

5.   Answer the following questions using rates:

a)   If a car uses 30 litres of petrol to travel 450km, how many kilometres can it travel with 20 litres of petrol?

b)   If a box of 10 chocolate bars costs R40, how much would it cost to give 30 children chocolate bars.

c)   If you get 5 pink Smarties in a box, how many pink Smarties would you have in 6 boxes?

d)   It costs R5 to buy 6 suckers. How much would it cost to buy 72 suckers?

e)   A doctor uses 30 pairs of sterile gloves in one day. How many gloves would she use in 21 days?

6.   Answer the following questions using ratios:

a)   If a class has 35 students, and 15 of the students are girls, give the simplified ratio of boys to girls.

b)   If a packet of jelly beans has a ratio of 3 red jelly beans for every 2 green jelly beans. If there are 10 green jelly beans in the packet, how many red jelly beans are 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?

d)   George has 2 spoons of sugar, for every spoon of coffee. If he has a cup half of his regular size, how much sugar and coffee should he put in so that it tastes the same?

e)   A cake recipe has a ratio of 2 cups of flour for every 1 cup of sugar. If Patricia wants to triple the size of her cake, how much flour and sugar will she need?