

YEAR 8 MATHEMATICS WEEK 1 2020 (TERM 2)

Year: 8

Date: Monday 18 May 2020

STRAND: NUMBERS

TOPIC: Ratio

LESSON OUTCOME: At the end of this lesson student(s) should be able to compare two quantities in relation to ratio.

Instructions: Hi dear Parents/Guardians and students - In this Lesson students are going to compare two quantities and do the selected questions for **Exercise 1.5**.

*[Note that all the Quizzes/Test and or Assignment will be based on the selected questions for each exercise. These lessons are designed for **one hour per Lesson**.]*

What to do: Do the following selected questions

Exercise 1.5: Q2 (a, g, k); Q5, Q7; Q12

Solutions: Solutions will be available online via

<https://www.facebook.com/centralschoolemergencyforum/posts/108720557434149>

Ratio

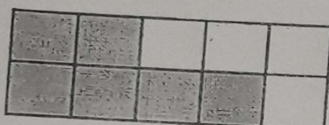
A ratio compares two quantities, like in a rate. In a rate, the two quantities have different units, but a ratio must have the same units.

Ratios are written as:

3 : 2
or 3 to 2
or $\frac{3}{2}$

A ratio of 3 : 2 means 3 parts of one quantity to 2 parts of another quantity.

The following show ratios:



Ratio of shaded to unshaded is 6 : 4.

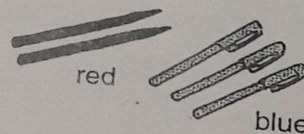


Ratio of boys to girls is 9 : 3.

Examples

Find the ratios:

(a) of red pens : blue pens.



Answer: There are 2 red pens and 3 blue pens.


So the ratio of:

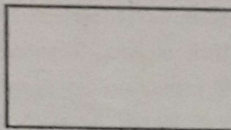
red pens : blue pens

2 : 3

Only numbers are used in the ratio and a colon (:) is placed between them.

- (b) of height of small rectangle to height of big rectangle.

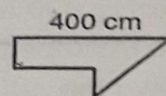
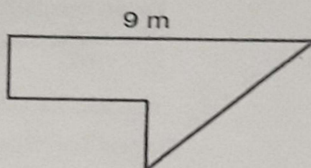
2 cm 

5 cm 

Answer: Height of small rectangle is 2 cm and height of big rectangle is 5 cm.
Therefore the ratio is 2 : 5.

The units used must be the same.

- (c) of the length of the first drawing to the second.



Answer: ratio is 9m : 400cm
Therefore 900 : 400

Units must be the same.

9 m = 900 cm

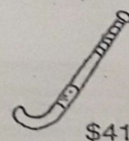
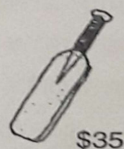
Exercise 1.5

1. Write a ratio of the first diagram to the second diagram for each of the following:

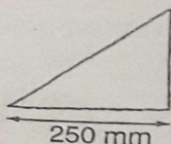
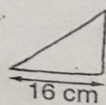
(a)



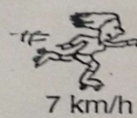
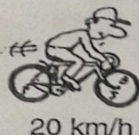
(b)



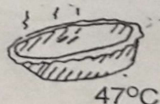
(c)



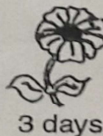
(d)



(e)



(f)

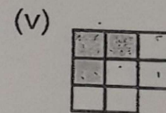
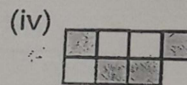
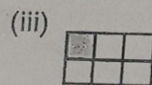
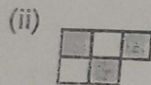
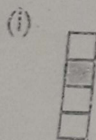


2. Write each of the following as a ratio:
- the amount of money, 3 000 vatu to 1 700 vatu
 - the ages, 7 years to 1 year
 - 5 metres to 8 metres
 - 16 litres of milk to 3 litres of milk
 - the 4 pies eaten by John to Sally's 2 pies
 - the sum of the angles in a triangle to the sum of angles in a quadrilateral
 - 8 months to 1 year
 - 2 kg to 600 g
 - 40 cm to 200 mm
 - 3 hours to 1 day
 - 4 km to 800 m
 - 150 minutes to 2 hours.

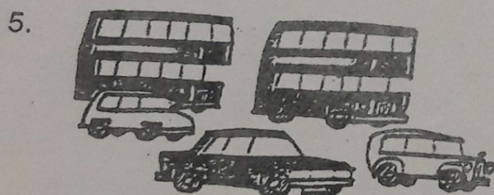
Remember:
the units must
be the same.



3. Write down the ratio of
- shaded squares to unshaded squares
 - unshaded squares to shaded squares.



4. In this fruit bowl, there are 4 apples and 3 pears.
Write down the ratio of
- pears to apples
 - apples to pears.



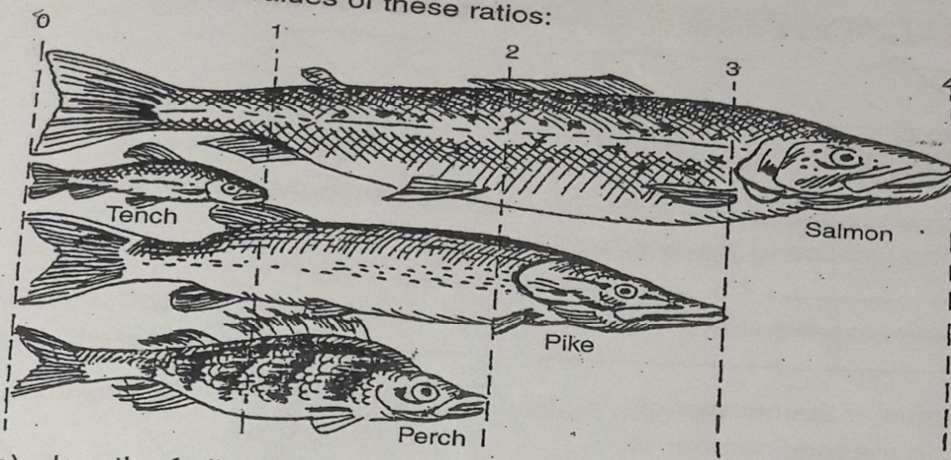
Write down the ratio of:

- cars to buses
- buses to cars.

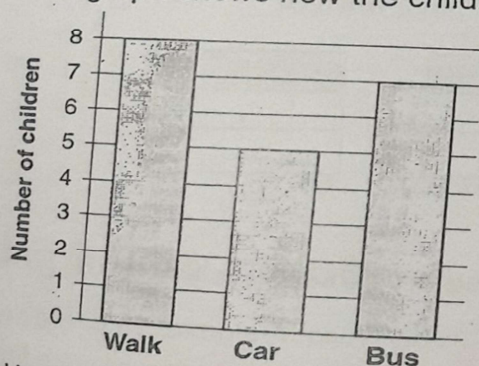
6. Write down the ratio of:
- boys to girls
 - children with hats to those without hats
 - happy faces to unhappy faces.



7. Write down the values of these ratios:



- length of pike: length of tench
 - length of perch: length of tench
 - length of salmon: length of tench
 - length of salmon: length of pike
 - length of tench: length of pike
 - length of perch: length of pike
8. This graph shows how the children in a class travel to school.



Write down the ratio of:

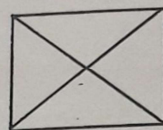
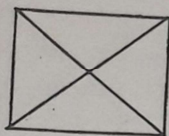
- those who walk to those who come by car
- those who come by bus to those who walk
- those who walk to those who do not walk.

Here is part of a tiling pattern.

Write down the ratio of:

- regular hexagons to rectangles
- rectangles to equilateral triangles
- equilateral triangles to regular hexagons.

10. Write the ratio of the number of squares to the number of diagonals.



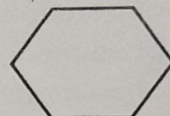
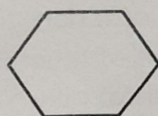
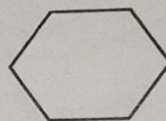
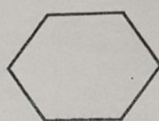
11. Use a ruler and measure the lines. For each pair, write the ratio of the length of the first line to the length of the second line.

(a) _____

(b) _____

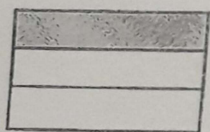
(c) _____

12. Write the ratio of the number of hexagons to the total number of sides.

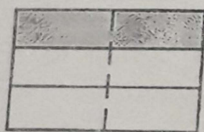


Equivalent ratios

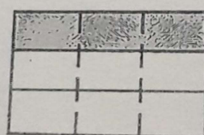
Look at the diagram.



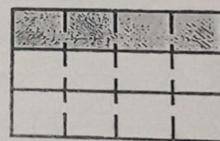
A



B



C



D

Each of the rectangles is the same size. The shaded area in each is the same. The ratio of shaded to unshaded in each is:

A : ratio is 1 : 2

B : ratio is 2 : 4

C : ratio is 3 : 6

D : ratio is 4 : 8

Since each of the above are the same, we can then say that:

1 : 2, 2 : 4, 3 : 6 and 4 : 8
are equivalent ratios.