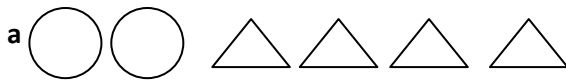# Ratio, Proportion and Rates
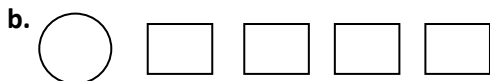# A MATH Review:

INSTRUCTIONS: Be sure to read each question carefully and make sure you understand what the question is asking. Write full sentences where appropriate. Box your answers.
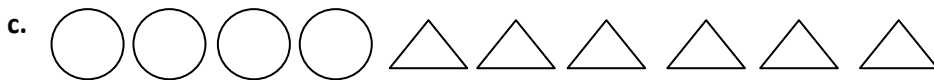
1. **Write each ratio in three different ways. Write you answer in simplest form.**

   a

   total to circles

   b.

   squares to circles

   c.

   circles to total

   d. 6 black marbles, 16 blue marbles, 5 white marbles, and 11 violet marbles
   Find the ratio of all the marble to the white marbles

   e. 17 black marbles, 8 brown marbles, 13 white marbles, and 12 violet marbles
   Find the ratio of all the marbles to brown marbles

   f. 4 black marbles and 15 brown marbles. Find the ratio of black marbles to brown marbles.

   g. 10 blue marbles, 18 brown marbles, and 13 violet marbles. Find the ratio of brown marbles to all the marbles.

2. **Simplify the following ratios:**

   a. 9:12   b. 14 to 7   c. 16/4

   d. 2:46   e. 9 to 9   f. 40/16

2. **Find the missing numbers.**

   a.   4:5 = _____:50   b. 10:3 = 20: _____   c. 4:3 = _____:6
   d.   2:1= 10:_____   e. 21:6=_____:2   f. 45:_____=5:4

3. Express each of the following situations using a rate in _simplest form_. Show all your working out. Be sure to include a sentence.

a. A 20L can of paint cost $80. What is the price per litre?

b. What is the cost per meter of 7m of rope that costs $21?

c. What is the average speed of a train that travelled 600km in 3 hours?

d. What is the cost per metre of 7m of rope that costs $21?

e. A driver takes 10 hours to travel from Sydney to Melbourne. What is the average speed for this 880km trip?

f. The UAE needs 81 runs in the next 9 overs to win a one-day cricket match. What run rate is required?

g. The 1400km plane ride from Sharjah to Egypt takes 3 hours. What is the average speed of the aircraft?

h. A patient's heart beats 360 times in 5 minutes. What is the patient's heart rate in beats per minute?

4. Convert the following to a correct ratio. _Simplify_ the ratios. Show your working out.
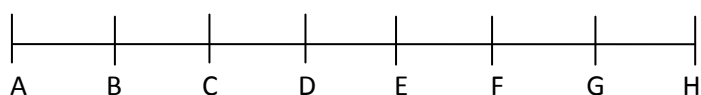
a. 4 m to 1.2 km =   b. 25 red balloons to 64 blue balloons   c. 2.3 kg to 2300g

d. 4.3 L to 224 ml   e. 15 secs to 1.5 mins   f. 3.8kg to 7.5 kg

g. 30 mins and 3 hrs   h. 119g and 1.4kg   i. 120 secs and 2 hours

Find the speed of the following units indicated:
a. A snake slithers 20metres in 30 seconds _____m/min
b. An ant travels 20 metres in 3 minutes _____1000cm/min

5. Which point divides the lines AH in the following ratios? Write the letter in the space provided.

a.

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|----|----|----|----|----|----|----|
A    B    C    D    E    F    G    H
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a. 20:8 _____   b. 2:12 _____   c. 8:6 _____   d. 12:2 _____   e. 4:10 _____   f. 9:12 _____

b.

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|----|----|----|----|----|----|----|
A    B    C    D    E    F    G    H
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a. 1:6 _____   b. 3:4 _____   c. 4:3_____   d. 2:5 _____   e. 12:2 _____   f. 10:4 _____

6. Show your working out by finding the number of cans for white paint if the ratio of blue paint to white paint in a paint store is 4:6

HINT: Step1: write out a ratio for each lettered question as a fraction.
     Step 2: solve for the missing value.
i) 40 cans of blue paint   ii) 100 cans of blue paint   iii) 250 paint cans in total

   a.   Find the number of paint cans in total if there are
       i)   15 cans of white paint   ii) 300 cans of blue paint

7. Ms. Claire would like to make some of her killer punch for her friends this weekend. She is going to make **5 litres** of punch. However, Mrs. Claire is unsure of how many millilitres (mL) of each juice is required to make the punch. She has 4 parts lemon, 1 part sprite, 2 parts apple, and 3 parts orange juice. How many mL's of **each type of juice** does Ms. Claire need if her juice is mixed in the ratio of **4:1:2:3.**