

Ratio Toolkit

Question Paper

Course	Edexcel IGCSE Maths
Section	1. Numbers & the Number System
Topic	Ratio Toolkit
Difficulty	Hard

Time allowed: 80
Score: /61
Percentage: /100

Question 1

Colin works on 5 days each week.

Each day he drives from his home to work and from work to his home.

Colin pays £3.50 each day to use the car park at work.

The distance from Colin's home to work is 18 miles.

Colin's car uses one gallon of petrol every 45.2 miles.

1 litre of petrol costs 136.9p

1 gallon = 4.546 litres

Work out the total cost for Colin to use his car for work each week.

You must show all your working.

[5 marks]

Question 2a

William is building a planetary path for people to walk along.

The planetary path will have a model of the Sun and models of the planets.

William uses two different scales.

He uses

1 cm to 1000 km for the diameter of each planet

1 m to 1 000 000 km for the distance from the Sun to each planet

William makes a model of the planet Venus.

The model has a diameter of 12.1 cm.

Work out the real diameter of the planet Venus.

Give your answer in standard form.

[2 marks]

Question 2b

William works out the distance from the model of the Sun to the model of the planet Neptune.

The real distance from the Sun to the planet Neptune is 4.503×10^9 km.

Work out the distance from the model of the Sun to the model of the planet Neptune.

Give your answer in km, correct to 1 decimal place.

[3 marks]

Question 3a

There are some red counters and some yellow counters in a bag in the ratio 1 : 5

There are 20 yellow counters in the bag.

Work out the number of red counters in the bag.

[2 marks]

Question 3b

Janet puts some more red counters into the bag.

The ratio of the number of red counters to the number of yellow counters is now 1 : 2

How many red counters does Janet put into the bag?

[2 marks]

Question 4

Frank, Mary and Seth shared some sweets in the ratio 4 : 5 : 7
Seth got 18 more sweets than Frank.

Work out the total number of sweets they shared.

[3 marks]

Question 5a

There are some red counters and some yellow counters in a bag.

There are 30 yellow counters in the bag.

The ratio of the number of red counters to the number of yellow counters is 1 : 6

Work out the number of red counters in the bag.

[2 marks]

Question 5b

Riza puts some more red counters into the bag.

The ratio of the number of red counters to the number of yellow counters is now 1 : 2

How many red counters does Riza put into the bag?

[2 marks]

Question 6

The perimeter of a right-angled triangle is 72 cm.

The lengths of its sides are in the ratio 3 : 4 : 5

Work out the area of the triangle.

[4 marks]

Question 7

Mariana sells bags of bird food.

The bags that Mariana sold last week each contained 12kg of seeds.

The bags that she is going to sell next week will each contain a mixture of nuts and seeds where for each bag

$$\text{weight of nuts} : \text{weight of seeds} = 4 : 5$$

The total weight of the nuts and the seeds in each bag will be 19.35 kg

The weight of seeds in each bag that Mariana sells next week will be less than the weight of seeds in each bag that Mariana sold last week.

Work out this decrease as a percentage of the weight of seeds in each bag that Mariana sold last week.

Give your answer correct to one decimal place.

..... %

[4 marks]

Question 8

Andreas, Isla and Paulo share some money in the ratios 3 : 2 : 5

The **total** amount of money that Isla and Paulo receive is £ 76 more than the amount of money that Andreas receives.

Andreas buys a video game for £ 48.50 with some of his share of the money.

Work out how much money Andreas has left from his share of the money when he has bought the video game.

£.....

[4 marks]

Question 9

Work out the difference between the largest share and the smallest share when 3450 yen is divided in the ratio 2 : 6 : 7

..... yen

[3 marks]

Question 10

Jeff and Kaz share £270 in the ratio Jeff : Kaz = 2.6 : 1

How much **more** than Kaz does Jeff get?

£

[3 marks]

Question 11

Work out

cube root of 512 : reciprocal of 0.4

Give your answer in the form $n : 1$

[3 marks]

Question 12

Purple paint is made by mixing red paint and blue paint in the ratio 5 : 2

Yan has 30 litres of red paint and 9 litres of blue paint.

What is the **maximum** amount of purple paint he can make?

.....litres

[3 marks]

Question 13

Theo starts with savings of £18

James starts with no savings.

Each week from now,

Theo will save £4.50 and James will save £4

In how many weeks will Theo and James have savings in the ratio 15 : 8 ?

[3 marks]

Question 14

Rana sells 192 cakes in the ratio small : medium : large = 7 : 6 : 11

The profit for one medium cake is twice the profit for one small cake.

The profit for one large cake is three times the profit for one small cake.

Her total profit is £532.48

Work out the profit for one small cake.

£.....

[5 marks]

Question 15a

Bob makes dry concrete by mixing cement, sand and stone in the ratio 1 : 2 : 3 by weight. He buys the cement, sand and stone in bags as shown in this table.

	Weight of bag (kg)	Cost per bag (£)
Cement	25	5.50
Sand	20	2.00
Stone	15	3.90

He packs the dry concrete into 30kg bags.

Bob buys just enough cement, sand and stone to make 50 bags of dry concrete.

Show that Bob buys 500kg of sand.

[3 marks]

Question 15b

Bob sells the 50 bags of dry concrete for a total of £396.

Calculate Bob's percentage profit.

[5 marks]

