

CCT Weekly-MATHEMATICS

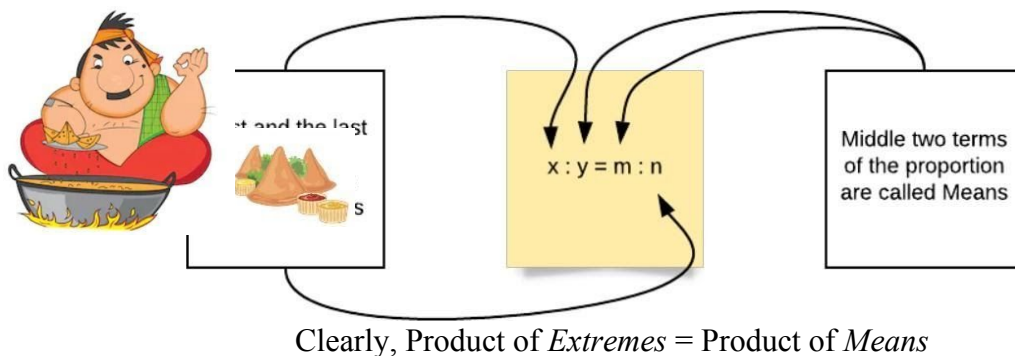
UNIT 1 : Ghisamal's samosa

A ratio is a comparison of two quantities using a common reference. Ratio of x to y can be expressed in the form x to y or x : y or x/y

An equation stating that two ratios are equal is called a *proportion*.

$$\Rightarrow \frac{x}{y} = \frac{m}{n} \text{ is a proportion}$$

Proportion is also written as $x : y :: m : n$ using the symbol (::)



Ghisamal is famous for making lip smacking samosas. On a given day, he earns Rs1260 by selling 120 samosas.

Question 1

If Ghisamal sold 250 samosas on the Independence Day eve, how much did he earn that day?

- a) Rs 2345
- b) Rs 2425
- c) Rs 2625
- d) Rs 2525

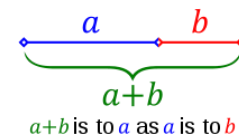
Question 2

Ghisamal mixes potato and dry fruits for the filling of samosa in the ratio 4 : 1. How much quantity of dry fruits does he use for a mixture containing 15 kg potato?

- a) 3.25 kg
- b) 3.5 kg
- c) 3 kg
- d) 3.75 kg

UNIT 2: Golden Ratio and Human Anatomy

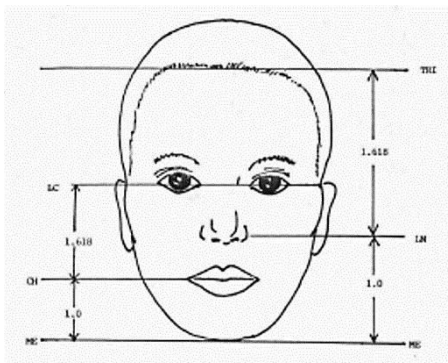
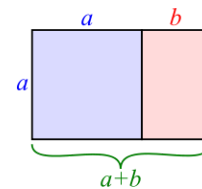
Two quantities are said to be in the golden ratio if their ratio is same as the ratio of their sum to the larger of the two quantities.



$$\Rightarrow \frac{a}{b} = \frac{a+b}{a}, a > b$$

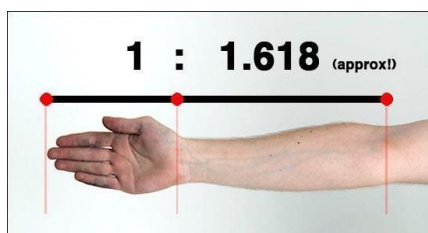
The Greek symbol ϕ or Φ (*phi*) is used to represent the golden ratio.

When solved, $\phi = \frac{1+\sqrt{5}}{2} = 1.6180339887 \dots \approx 1.618$



Almost all creations in nature, architecture, art, and design follow the golden ratio for universal appeal and astounding functionality suggesting its importance as a fundamental characteristic of the Universe.

A human body is in golden ratio as well!



extended (refer figure) is in the
part of his arm AB measures 19cm,
C?

- a) 30.7cm
- b) 30.7cm
- c) 30.8cm
- d) 30.72cm



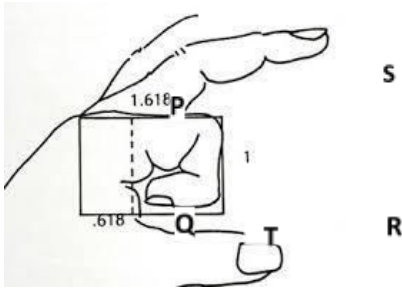
Question 4

Kuhu sketches her father's face keeping the length of his face 4.7cm and width of the face as 2.9cm. Is the sketch of the face in approximate golden ratio?

- a) Yes, because $4.7/2.9 \approx 1.62$
- b) No, because $4.7/2.9 \neq 1.6$
- c) Yes, because $2.9/4.7 \approx 0.6$
- d) No, because $4.7/2.9 \approx 1.7$

Question 5

In the given diagram, the ratio between the parts of a finger are such that PS:SR is 1.618 : 1 whereas TR:SR is 1:1. If SR measures 2.3cm, what is the length of the full finger when extended completely?



- a) 8.3cm
- b) 8.32cm
- c) 3.72cm
- d) 6.02cm

Source credit for pictures and information on Golden ratio :

https://en.wikipedia.org/wiki/Golden_ratio#:~:text=The%20golden%20ratio%20is%20also,golden%20cut%2C%20and%20golden%20number.

<https://golden-ratio.club/golden-ratio-in-people>

Answer Key

1. (c) part

$$\text{Rs}1260:120 \text{ samosas} = \text{Rs}x : 250 \text{ samosas}$$

$$\Rightarrow 1260 \times 250 = 120x$$

$$\Rightarrow x = \frac{1260 \times 250}{120} = \text{Rs. } 2625$$

2. (d) part

$$4:1 = 15\text{kg} : x \text{ kg}$$

$$\Rightarrow 4x = 1 \times 15$$

$$\Rightarrow x = 15/4 = 3.75\text{kg}$$

3. (a) part $1 : 1.618 = AB :$

BC

$$\Rightarrow 1 : 1.618 = 19 \text{ cm} : BC$$

$$\Rightarrow 1 \times BC = 1.618 \times 19$$

$$\Rightarrow BC = 30.742 \approx 30.74\text{cm}$$

4. (a)part

5. (b)part

$$\text{As } TR:SR = 1:1 \text{ and } SR = 2.3\text{cm} \Rightarrow TR = 2.3\text{cm} \text{ Also,}$$

$$PS:SR = 1.618 : 1$$

$$\Rightarrow PS: 2.3 = 1.618:1$$

$$\Rightarrow PS = 2.3 \times 1.618 = 3.7214 \approx 3.72\text{cm}$$

$$\therefore \text{Length of full finger} = PS + SR + RT = 8.32\text{cm}$$

Created By:

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