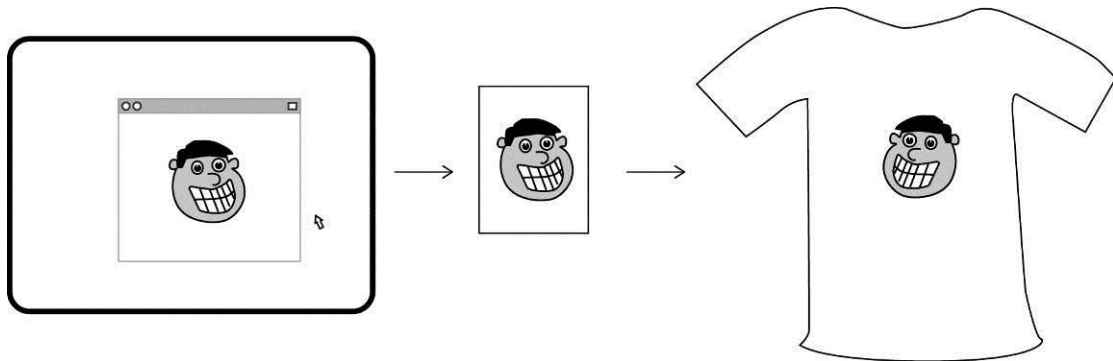


Critical and Creative Thinking (CCT) Weekly
June 2020

UNIT 1 : IRON-ON IMAGE

Samira designs images for t-shirts on her computer. She prints the images using a special paper. The image is then ironed onto the t-shirt.

The final image on the t-shirt is a **mirror image** of the design on the computer.



Designed on computer

Printed on paper

Ironed onto a t-shirt

QUESTION 1: This picture shows a new design that Samira printed on the paper.



How will the design appear on the t-shirt?

- a)
- b)
- c)
- d)

QUESTION 2 : The designs prepared by Samira on her computers can also be used for printing the images on plain porcelain mugs. Samira's friend Madhav gets 5 t- shirts and 2 mugs printed for an event in his colony. Samira charged him Rs. 500 as printing charges. Choose the correct equation for representing the total printing charges, if printing cost of one t- shirt is Rs. x and for printing one mug costs Rs. y .

- a) $x + y = 500$
- b) $2x + 5y = 500$
- c) $5x + 2y = 500$
- d) $5x - 2y = 500$

QUESTION 3: Deepak has just opened a new organic fruit and vegetables shop. He wants to distribute printed t- shirts to his workers to create publicity for his shop. So, he approaches Samira with an image. Samira cropped out a square image from the photo to be printed on the t- shirts.



She tripled the width of the image but kept it a square.



She then cut off two rectangles from both sides of the image. The width of the image was now $\frac{2}{3}$ of the width before this edit.



2/3

She then reduced the dimensions of the image by half.



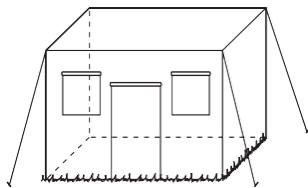
The area of the image was now 21.66 cm².

What was the width of the initial cropped image?

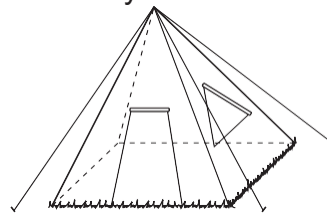
UNIT 2 : PLAY TENTS

A company makes play tents for children. They make them in the shape of cuboids and square-based pyramids. The top and side faces of the tents are made using tarpaulin cloth. No material is used for the base.

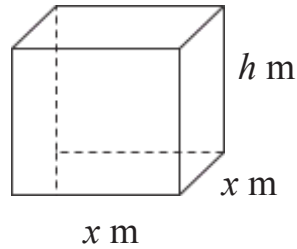
Cuboid tent



Pyramid tent



QUESTION 4: The cuboid tent has a square base of side x metres and height h metres.



The company uses 8m^2 of material to make each cuboid tent. What is the volume V of the cuboid tent?

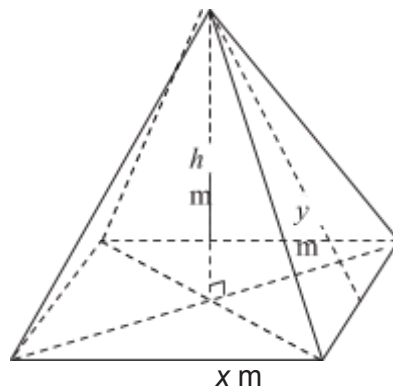
a) $v = \frac{(8-x^2)x}{4}$

b) $v = \frac{(4-x^2)x}{4}$

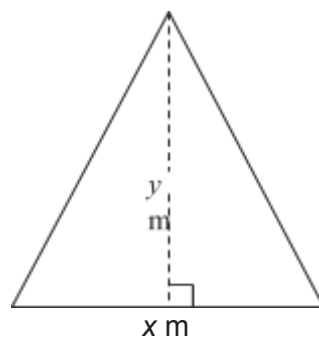
c) $v = \frac{(4-x^2)}{4}$

d) $v = \frac{(8-x^2)x}{2}$

QUESTION 5 : The pyramid tent also has a square base of side x metres and a height of h metres. The distance between the top of the pyramid and the midpoint of each edge of the base is y metres.



The triangle below shows one of the faces of the pyramid.



Then, the total area, s , of the four triangular faces of the pyramid in simplest form is

- a) $s = xy$
- b) $s = 2xy$
- c) $s = 3xy$
- d) $s = 4xy$

Answer Key

UNIT 1 : IRON-ON IMAGE

Answer 1: b)

Answer: 2: c) $5x + 2y = 500$

Answer: 3: 3.8 cm

I Image

Let the sides of the square image be x cm

II Image

Now, The side of the square image is 3x cm

III Image

Length of the image is 3x cm

Breadth of the image = $\frac{2}{3}x \times 3 = 2x$

IV Image

Length of the image = $\frac{3}{2}x$

Breadth of the image = x

Area of rectangular image = $\frac{3}{2}x \times x$

$$\frac{3}{2}x^2 = 21.66$$

$$x^2 = 14.44$$

$$x = 3.8 \text{ cm}$$

UNIT 2 : PLAY TENTS

Answer 4: a) $v = \frac{(8-x^2)x}{4}$

Total material used for tent = $8m^2$

$$8 = 2(l+b)h + lb$$

$$8 = 2(x+x)h + x^2$$

$$8 = 4xh + x^2$$

$$\frac{(8-x^2)}{4x} = h$$

$$V = l \times b \times h$$

$$V = \frac{x^2 (8-x^2)}{4x}$$

$$V = \frac{(8-x^2)x}{4}$$

Answer 5 : b) $s = 2xy$

$$\text{Area of one triangular face} = \frac{1}{2} \times b \times h$$

$$= \frac{1}{2} \times x \times y$$

$$= \frac{xy}{2}$$

$$\text{Total Area of 4 triangular faces} = 4 \times \frac{xy}{2} = 2xy$$