

## Questions from Cheyenne (22 Feb)

1. Kenneth had some money at first. After he spent  $\frac{1}{3}$  of his money on a bag, his father gave him \$12 more. He then spent  $\frac{1}{3}$  of what he had on a book. After his sister had given him another \$5, he had \$57 left. How much money did Kenneth have at first?

### Suggested Solution:

After Kenneth's father gave him \$12 more and spent  $\frac{1}{3}$  of what he had, he was left with  $\frac{2}{3}$  of his money.

$$\frac{2}{3} \text{ of his money} \quad \rightarrow \quad \$57 - \$5 = \$52 \text{ (before his sister gave him \$5)}$$

$$\frac{3}{3} \text{ of his money} \quad \rightarrow \quad \$52 \div 2 \times 3 = \$78$$

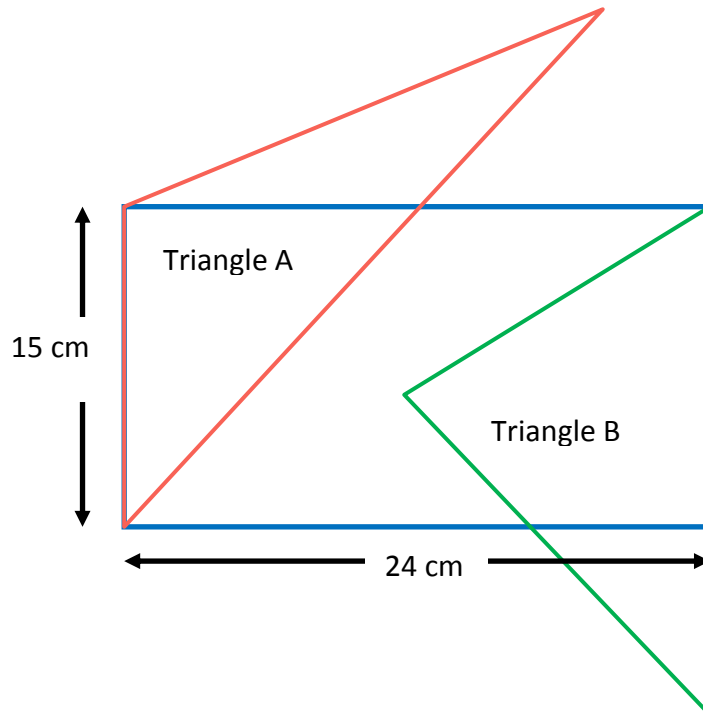
After spending  $\frac{1}{3}$  of his money at first, Kenneth was left with  $\frac{2}{3}$  of his money.

$$\frac{2}{3} \text{ of his money} \quad \rightarrow \quad \$78 - \$12 = \$66 \text{ (before his father gave him \$12)}$$

$$\frac{3}{3} \text{ of his money} \quad \rightarrow \quad \$66 \div 2 \times 3 = \$99$$

Ans: **\$99 at first**

2.



The above figure is made up of one rectangle and two triangles.  $\frac{1}{4}$  of the rectangle is covered by **Triangle A** and  $\frac{1}{3}$  of the rectangle is covered by **Triangle B**.  $\frac{3}{8}$  of Triangle A and  $\frac{1}{4}$  of Triangle B is out of the rectangle. What fraction of the area of the figure is the area of the rectangle **not** covered by the two triangles? Give your answer in its simplest form.

**Suggested Solution:**

Region A2 takes up  $\frac{1}{4}$  of rectangle

Area of A2  $\rightarrow \frac{1}{4} \times 15 \times 24 = 90 \text{ cm}^2$

Area of A1 is  $\frac{3}{8}$  of Triangle A ; Area of A2 is  $\frac{5}{8}$  of Triangle A

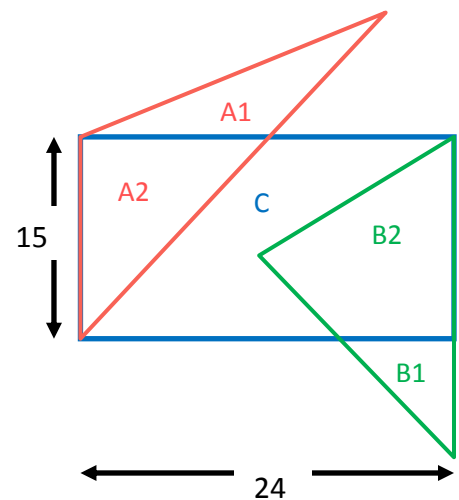
Area of A1  $\rightarrow 90 \div 5 \times 3 = 54 \text{ cm}^2$

Region B2 takes up  $\frac{1}{3}$  of rectangle

Area of B2  $\rightarrow \frac{1}{3} \times 15 \times 24 = 120 \text{ cm}^2$

Area of B1 is  $\frac{1}{4}$  of Triangle B ; Area of B2 is  $\frac{3}{4}$  of Triangle B

Area of B1  $\rightarrow 120 \div 3 \times 1 = 40 \text{ cm}^2$



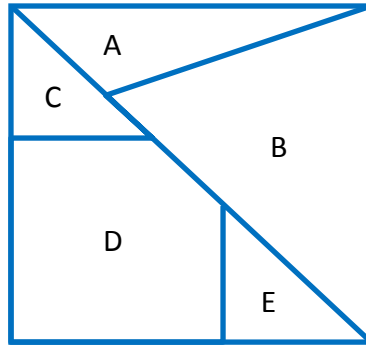
Area of whole figure  $\rightarrow A1 + B1 + \text{Rectangle Area} = 15 \times 24 + 54 + 40 = 454 \text{ cm}^2$

Area of C  $\rightarrow$  Rectangle Area  $- A2 - B2$   
 $= 15 \times 24 - 90 - 120$   
 $= 150 \text{ cm}^2$

$\frac{150}{454} = \frac{75}{227}$

Ans:  $\frac{75}{227}$

3. The square below is divided into 5 parts as shown.



The areas of A and B are in the ratio of 1 : 4. The areas of C, D and E are in the ratio of 3 : 8 : 4.

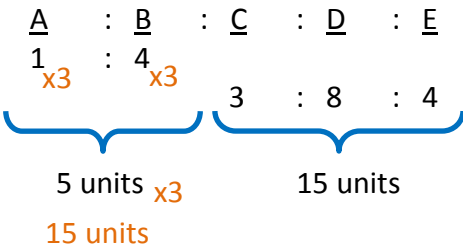
(a) What fraction of the square is part D?

(b) Part B is bigger than Part E by  $32 \text{ m}^2$ . Find the area of half of the square.

**Suggested Solution:**

A diagonal cuts the square into 2 equal halves,  
 Area of A + B is equal to Area of C + D + E.

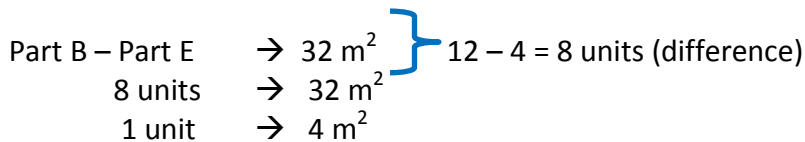
Half of the square



3 : 12 : 3 : 8 : 4 Total  $\rightarrow$  30 units

$$\frac{\text{Part D}}{\text{Square}} = \frac{8}{30} = \frac{4}{15}$$

Ans: (a)  $\frac{4}{15}$



Half of the square is Part A + Part B  $\rightarrow$  12 + 3 = 15 units

15 units  $\rightarrow$   $60 \text{ m}^2$

Ans: (b)  $60 \text{ m}^2$

