



CLASS NOTES-ANSWERS

EXERCISE 2.1

1. Solve:

a. $2 - \frac{3}{5}$

b. $4 + \frac{7}{8}$

c. $\frac{3}{5} + \frac{2}{7}$

d. $\frac{9}{11} - \frac{4}{15}$

e. $\frac{7}{10} + \frac{2}{5} + \frac{3}{2}$

f. $2\frac{2}{3} + 3\frac{1}{2}$

g. $8\frac{1}{2} - 3\frac{5}{8}$

Answer:

a. $2 - \frac{3}{5} = \frac{10 - 3}{5} = \frac{7}{5}$

b. $4 + \frac{7}{8} = \frac{32 + 7}{8} = \frac{39}{8} = 4\frac{7}{8}$

c. $\frac{3}{5} + \frac{2}{7} = \frac{21 + 10}{35} = \frac{31}{35}$

d. $\frac{9}{11} - \frac{4}{15} = \frac{135 - 44}{165} = \frac{91}{165}$

e. $\frac{7}{10} + \frac{2}{5} + \frac{3}{2} = \frac{7 + 4 + 15}{10} = \frac{26}{10} = \frac{13}{5} = 2\frac{3}{5}$

f. $2\frac{2}{3} + 3\frac{1}{2} = \frac{8}{3} + \frac{7}{2} = \frac{16 + 21}{6} = \frac{37}{6} = 6\frac{1}{6}$

g. $8\frac{1}{2} - 3\frac{5}{8} = \frac{17}{2} - \frac{29}{8} = \frac{68 - 29}{8} = \frac{39}{8} = 4\frac{7}{8}$

2. Arrange the following in descending order:

a. $\frac{2}{9}, \frac{2}{3}, \frac{8}{21}$

b. $\frac{1}{5}, \frac{3}{7}, \frac{7}{10}$

Answer:

a. Converting them into like fractions, we get

$$\frac{2}{9} = \frac{2 \times 7}{9 \times 7} = \frac{14}{63}$$

$$\frac{2}{3} = \frac{2 \times 21}{3 \times 21} = \frac{42}{63}$$

$$\frac{8}{21} = \frac{8 \times 3}{21 \times 3} = \frac{24}{63}$$



Arranging in descending order

$$\frac{42}{63} > \frac{24}{63} > \frac{14}{63}$$

$$\text{Therefore, } \frac{2}{3} > \frac{8}{21} > \frac{2}{9}$$

b. Converting them into like fractions, we get

$$\frac{1}{5} = \frac{1 \times 14}{5 \times 14} = \frac{14}{70}$$

$$\frac{3}{7} = \frac{3 \times 10}{7 \times 10} = \frac{30}{70}$$

$$\frac{7}{10} = \frac{7 \times 7}{10 \times 7} = \frac{49}{70}$$

Arranging in descending order

$$\frac{49}{70} > \frac{30}{70} > \frac{14}{70}$$

$$\text{Therefore, } \frac{7}{10} > \frac{3}{7} > \frac{1}{5}$$

3. In a “magic square”, the sum of the numbers in each row, in each column and along the diagonals is the same. Is this a magic square?

$\frac{4}{11}$	$\frac{9}{11}$	$\frac{2}{11}$
$\frac{3}{11}$	$\frac{5}{11}$	$\frac{7}{11}$
$\frac{8}{11}$	$\frac{1}{11}$	$\frac{6}{11}$

(Along the first row $\frac{4}{11} + \frac{9}{11} + \frac{2}{11} = \frac{15}{11}$)

Answer:

Sum of rows:

$$\text{Sum of first row} = \frac{4}{11} + \frac{9}{11} + \frac{2}{11} = \frac{4+9+2}{11} = \frac{15}{11}$$



$$\text{Sum of second row} = \frac{3}{11} + \frac{5}{11} + \frac{7}{11} = \frac{3+5+7}{11} = \frac{15}{11}$$

$$\text{Sum of third row} = \frac{8}{11} + \frac{1}{11} + \frac{6}{11} = \frac{8+1+6}{11} = \frac{15}{11}$$

Sum of columns:

$$\text{Sum of first column} = \frac{4}{11} + \frac{3}{11} + \frac{8}{11} = \frac{4+3+8}{11} = \frac{15}{11}$$

$$\text{Sum of second column} = \frac{9}{11} + \frac{5}{11} + \frac{1}{11} = \frac{9+5+1}{11} = \frac{15}{11}$$

$$\text{Sum of third column} = \frac{2}{11} + \frac{7}{11} + \frac{6}{11} = \frac{2+7+6}{11} = \frac{15}{11}$$

Sum of diagonals:

$$\text{Sum of first diagonal} = \frac{4}{11} + \frac{5}{11} + \frac{6}{11} = \frac{4+5+6}{11} = \frac{15}{11}$$

$$\text{Sum of second diagonal} = \frac{2}{11} + \frac{5}{11} + \frac{8}{11} = \frac{2+5+8}{11} = \frac{15}{11}$$

Since, the sum of fractions in each row, column, and along the diagonal is the same, therefore, the given square is a magic square.

4. A rectangular sheet of paper is $12\frac{1}{2}$ cm long and $10\frac{2}{3}$ cm wide. Find its perimeter.

Answer: Length of rectangular sheet = $12\frac{1}{2}$ cm = $\frac{25}{2}$ cm

Breadth of rectangular sheet = $10\frac{2}{3}$ = 32 cm

Perimeter of rectangle = $2 \times (\text{Length} + \text{Breadth})$

$$= 2 \times \left(\frac{25}{2} + \frac{32}{3} \right)$$

$$= 2 \times \left(\frac{25 \times 3 + 32 \times 2}{6} \right)$$

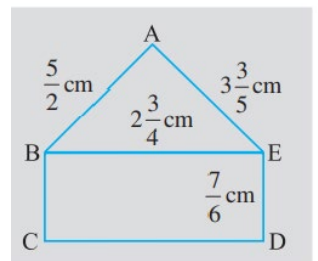
$$= 2 \times \left(\frac{75 + 64}{6} \right)$$



$$\begin{aligned}
 &= 2 \times \frac{139}{6} \\
 &= \frac{139}{3} \\
 &= 46 \frac{1}{3} \text{ cm}
 \end{aligned}$$

Therefore, perimeter of rectangular sheet of the paper is $46 \frac{1}{3}$ cm

5. Find the perimeters of (i) ΔABE (ii) the rectangle BCDE in this figure. Whose perimeter is greater?



Answer:

- (i) Perimeter of ΔABE = sum of all sides = $AB + BE + AE$

$$\begin{aligned}
 &= \frac{5}{2} + 2 \frac{3}{4} + 3 \frac{3}{5} \\
 &= \frac{5}{2} + \frac{11}{4} + \frac{18}{5} \\
 &= \frac{(5 \times 10) + (11 \times 5) + (18 \times 4)}{20} \\
 &= \frac{50 + 55 + 72}{20} \\
 &= \frac{177}{20} \\
 &= 8 \frac{17}{20} \text{ cm}
 \end{aligned}$$

Therefore, perimeter of ΔABE is $8 \frac{17}{20}$ cm.

- (ii) Perimeter of rectangle BCDE = $2 \times (\text{Length} + \text{Breadth})$

$$= 2 \times \left(2 \frac{3}{4} + \frac{7}{6} \right)$$



$$\begin{aligned}
 &= 2 \times \left(\frac{11}{4} + \frac{7}{6} \right) \\
 &= 2 \times \left(\frac{33+14}{12} \right) \\
 &= 2 \times \frac{47}{12} \\
 &= \frac{47}{6} \\
 &= 7 \frac{5}{6} \text{ cm}
 \end{aligned}$$

Therefore, perimeter of rectangle BCDE is $7 \frac{5}{6}$ cm.

$$8 \frac{17}{20} > 7 \frac{5}{6}$$

Therefore, perimeter of ΔABE is greater than the perimeter of rectangle BCDE.

6. Salil wants to put a picture in a frame. The picture is $7 \frac{3}{5}$ cm wide. To fit in the frame the picture cannot be more than $7 \frac{3}{10}$ cm wide. How much should the picture be trimmed?

Answer:

$$\text{The width of the picture} = 7 \frac{3}{5} \text{ cm} = \frac{38}{5} \text{ cm}$$

$$\text{Width of the picture frame} = 7 \frac{3}{10} \text{ cm} = \frac{73}{10} \text{ cm}$$

$$\text{Therefore, the width of the picture to be trimmed} = \frac{38}{5} - \frac{73}{10}$$

$$= \frac{2 \times 38 - 73 \times 1}{10}$$

$$= \frac{76 - 73}{10}$$

$$= \frac{3}{10} \text{ cm}$$



Thus, the picture should be trimmed $\frac{3}{10}$ cm to fit in the picture.

7. Ritu ate $\frac{3}{5}$ part of an apple and the remaining apple was eaten by her brother Somu. How much part of the apple did Somu eat? Who had the larger share? By how much?

Answer:

Part of apple eaten by Ritu = $\frac{3}{5}$

Part of apple eaten by Somu = $1 - \text{Part of apple eaten by Ritu}$

$$= 1 - \frac{3}{5}$$

$$= \frac{5-3}{5}$$

$$= \frac{2}{5}$$

Since, $\frac{3}{5} > \frac{2}{5}$ Ritu ate larger share.

Difference between their shares = $\frac{3}{5} - \frac{2}{5} = \frac{1}{5}$

Thus, Ritu's part is $\frac{1}{5}$ more than Somu's part.

8. Michael finished colouring a picture in $\frac{7}{12}$ hour. Vaibhav finished colouring the same picture in $\frac{3}{4}$ hour. Who worked longer? By what fraction was it longer?

Answer:

Time taken by Michael = $\frac{7}{12}$ hours

Time taken by Vaibhav = $\frac{3}{4}$ hours



$$= \frac{3 \times 3}{4 \times 3} \text{ (converting into like fractions)}$$
$$= \frac{9}{12}$$

Since, $\frac{9}{12} > \frac{7}{12}$ therefore, Vaibhav worked longer.

$$\text{Difference} = \frac{9}{12} - \frac{7}{12} = \frac{2}{12} = \frac{1}{6} \text{ hour}$$

Thus, Vaibhav took $\frac{1}{6}$ hour more than Michael.

