

Fractions and Decimals/Chapter 2/Notes &Textbook Solutions

Multiplication of Fractions:

Multiplication of a fraction by a Whole number:

To multiply a whole number with a proper or an improper fraction, we multiply the whole number with the numerator of the fraction, keeping the denominator same.

$$\text{Example: } 2 \times \frac{5}{3} = \frac{10}{3}$$

To multiply a mixed fraction to a whole number, first convert the mixed fraction to an improper fraction and then multiply.

$$\text{Example: } 3 \times 2\frac{5}{7} = 3 \times \frac{19}{7} = \frac{57}{7} = 8\frac{1}{7}$$

Fraction as an operator 'of':

'of' represents multiplication.

$$\text{Example: } \frac{2}{5} \text{ of } 25 = \frac{2}{5} \times 25 = \frac{50}{5} = 10$$

Exercise: 2.1

1. Multiply and reduce to lowest form and convert into a mixed fraction:

i) $7 \times \frac{3}{5}$

ii) $4 \times \frac{1}{3}$

iii) $2 \times \frac{6}{7}$

iv) $5 \times \frac{2}{9}$

v) $\frac{2}{3} \times 4$

vi) $\frac{5}{2} \times 6$

vii) $11 \times \frac{4}{7}$

$$\text{viii) } 20 \times \frac{4}{5}$$

$$\text{ix) } 13 \times \frac{1}{3}$$

$$\text{x) } 15 \times \frac{3}{5}$$

Answers:

$$\text{i) } 7 \times \frac{3}{5} = \frac{21}{5} = 4\frac{1}{5}$$

$$\text{ii) } 4 \times \frac{1}{3} = \frac{4}{3} = 1\frac{1}{3}$$

$$\text{iii) } 2 \times \frac{6}{7} = \frac{12}{7} = 1\frac{5}{7}$$

$$\text{iv) } 5 \times \frac{2}{9} = \frac{10}{9} = 1\frac{1}{9}$$

$$\text{v) } \frac{2}{3} \times 4 = \frac{8}{3} = 2\frac{2}{3}$$

$$\text{vi) } \frac{5}{2} \times 6 = \frac{30}{2} = 15$$

$$\text{vii) } 11 \times \frac{4}{7} = \frac{44}{7} = 6\frac{2}{7}$$

$$\text{viii) } 20 \times \frac{4}{5} = \frac{80}{5} = 16$$

$$\text{ix) } 13 \times \frac{1}{3} = \frac{13}{3} = 4\frac{1}{3}$$

$$\text{x) } 15 \times \frac{3}{5} = \frac{45}{5} = 9$$

2. Find:

$$\text{a) } \frac{1}{2} \text{ of i) } 24 \text{ ii) } 46$$

$$\text{b) } \frac{2}{3} \text{ of i) } 18 \text{ ii) } 27$$

$$\text{c) } \frac{3}{4} \text{ of i) } 16 \text{ ii) } 36$$

$$\text{d) } \frac{4}{5} \text{ of i) } 20 \text{ ii) } 35$$

Answers:

$$\text{a) i) } \frac{1}{2} \times 24 = \frac{24}{2} = 12$$

$$\text{ii) } \frac{1}{2} \times 46 = \frac{46}{2} = 23$$

$$\text{b) i) } \frac{2}{3} \times 18 = \frac{36}{3} = 12$$

$$\text{ii) } \frac{2}{3} \times 27 = \frac{54}{3} = 18$$

$$\text{c) i) } \frac{3}{4} \times 16 = \frac{48}{4} = 12$$

$$\text{ii) } \frac{3}{4} \times 36 = \frac{108}{4} = 27$$

$$\text{d) i) } \frac{4}{5} \times 20 = \frac{80}{5} = 16$$

$$\text{ii) } \frac{4}{5} \times 35 = \frac{140}{5} = 28$$

3. Multiply and express as a mixed fraction:

$$\text{a) } 3 \times 5\frac{1}{5}$$

$$\text{b) } 5 \times 6\frac{3}{4}$$

$$\text{c) } 7 \times 2\frac{1}{4}$$

$$\text{d) } 4 \times 6\frac{1}{3}$$

$$\text{e) } 3\frac{1}{4} \times 6$$

$$\text{f) } 3\frac{2}{5} \times 8$$

Answers:

$$\text{a) } 3 \times \frac{26}{5} = \frac{78}{5} = 15\frac{3}{5}$$

$$\text{b) } 5 \times \frac{27}{4} = \frac{135}{4} = 33\frac{3}{4}$$

$$\text{c) } 7 \times \frac{9}{4} = \frac{63}{4} = 15\frac{3}{4}$$

$$d) 4 \times \frac{19}{3} = \frac{76}{3} = 25\frac{1}{3}$$

$$e) \frac{13}{4} \times 6 = \frac{78}{4} = \frac{39}{2} = 19\frac{1}{2}$$

$$f) \frac{17}{5} \times 8 = \frac{136}{5} = 27\frac{1}{5}$$

4. Vidya and Pratap went for a picnic. Their mother gave them a water bottle that contained 5 litres of water. Vidya consumed $\frac{2}{5}$ of the water. Pratap consumed the remaining water.

i) How much water did Vidya drink?

ii) What fraction of the total quantity of water did Pratap drink?

Answer:

Total quantity of water = 5litres

i) Vidya consumed = $\frac{2}{5}$ of 5 = $\frac{2}{5} \times 5 = \frac{10}{5} = 2$ litres

ii) Pratap consumed = 3 litres