

Fractions

Warm-up Exercise

2. (a) Given, $\frac{7}{9}$; numerator of $\frac{7}{9} = 7$,

denominator of $\frac{7}{9} = 9$

(c) Given, $\frac{99}{100}$; numerator = 99,

denominator = 100

3. (a) $\frac{1}{3}$ of 12 = $\frac{1}{\cancel{3}_1} \times \cancel{12}^4 = 4$; option (i)

(b) $\frac{1}{4}$ of 28 = $\frac{1}{\cancel{4}_1} \times \cancel{28}^7 = 7$; option (iii)

(c) $\frac{2}{3}$ of 15 = $\frac{2}{\cancel{3}_1} \times \cancel{15}^5 = 10$; option (ii)

4. (b) $\frac{1}{13}$ = one-thirteenth

(c) $\frac{7}{10}$ = seven-tenths

(d) $\frac{5}{11}$ = five-elevenths

5. (b) Three-quarters = $3 \div 4 = \frac{3}{4}$

(c) Six-sevenths = $6 \div 7 = \frac{6}{7}$

(d) Five-ninths = $5 \div 9 = \frac{5}{9}$

6. (a) $\frac{1}{2}$ of ₹100 = $\frac{1}{\cancel{2}_1} \times \cancel{100}^{50} = ₹50$

(b) $\frac{1}{3}$ of a dozen = $\frac{1}{\cancel{3}_1} \times \cancel{12}^4 = 4$ items

(d) $\frac{1}{2}$ of a century = $\frac{1}{\cancel{2}_1} \times \cancel{100}^{50}$ years
= 50 years

Checkpoint 6A

3.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
16	16	16	16	16	16	16	16	16	16	16	16	16	16	16
+	×	+	×	+	×	+	×	+	×	+	×	+	×	+
0	$\frac{1}{8}$	$\frac{2}{8}$	$\frac{3}{8}$	$\frac{4}{8}$	$\frac{5}{8}$	$\frac{6}{8}$	$\frac{7}{8}$							1

Checkpoint 6B

2. (a) $\frac{1}{3}$ and $\frac{1}{3} \times \frac{2}{2} = \frac{2}{6}$

(e) $\frac{3}{19}$ and $\frac{3}{19} \times \frac{3}{3} = \frac{9}{57}$

4. (b) $\frac{12}{7} = 1\frac{5}{7}$

(d) $\frac{18}{7} = 2\frac{4}{7}$

(g) $\frac{32}{3} = 10\frac{2}{3}$

5. (d) $1\frac{16}{17} = \frac{17 \times 1 + 16}{17} = \frac{33}{17}$

(f) $19\frac{1}{3} = \frac{3 \times 19 + 1}{3} = \frac{57 + 1}{3} = \frac{58}{3}$

6. (a) $\frac{1}{3} = \frac{1 \times 2}{3 \times 2} = \frac{2}{6}$, $\frac{1}{3} = \frac{1 \times 3}{3 \times 3} = \frac{3}{9}$, $\frac{1}{3} = \frac{1 \times 4}{3 \times 4} = \frac{4}{12}$

(d) $\frac{3}{4} = \frac{3 \times 2}{4 \times 2} = \frac{6}{8}$, $\frac{3}{4} = \frac{3 \times 3}{4 \times 3} = \frac{9}{12}$,

$\frac{3}{4} = \frac{3 \times 4}{4 \times 4} = \frac{12}{16}$

8. (b) $\frac{7}{9}$, $\frac{21}{18}$ Here, $\frac{7}{9}$ is already in its simplest form.

Simplest form of $\frac{21}{18} = \frac{21 \div 3}{18 \div 3} = \frac{7}{6}$

Since, both the fractions have different simplest form. So, these are not equivalent.

Checkpoint 6C

2. (b) $\frac{4}{7} \square \frac{4}{8}$

Here, $\frac{4}{7} \times \frac{8}{8} = \frac{32}{56}$

$4 \times 8 = 32$ and $4 \times 7 = 28$

That is, $32 > 28$

Therefore, $\frac{4}{7} > \frac{4}{8}$.

3. (c) $\frac{1}{5}, \frac{4}{5}, 3\frac{3}{5}, \frac{6}{5}, \frac{9}{5}$

or $\frac{1}{5}, \frac{4}{5}, \frac{18}{5}, \frac{6}{5}, \frac{9}{5}$

Here all the fractions have the same denominator, so, arrange the numerators in descending order with common denominator 5, to find the required order of the fractions.

That is, $\frac{18}{5}, \frac{9}{5}, \frac{6}{5}, \frac{4}{5}, \frac{1}{5}$

Checkpoint 6D

1. (c) $\frac{32}{64} = \frac{\cancel{2}^1 \times \cancel{2}^1 \times \cancel{2}^1 \times \cancel{2}^1 \times \cancel{2}^1}{\cancel{2}_1 \times \cancel{2}_1 \times \cancel{2}_1 \times \cancel{2}_1 \times \cancel{2}_1 \times 2} = \frac{1}{2}$

(e) $\frac{162}{180} = \frac{162 \div 2}{180 \div 2} = \frac{81}{90}$, $\frac{81 \div 9}{90 \div 9} = \frac{9}{10}$

(f) $\frac{120}{135} = \frac{120 \div 15}{135 \div 15} = \frac{8}{9}$

Checkpoint 6E

1. (b) Sum = $\frac{3}{13} + \frac{4}{13} = \frac{7}{13}$

(f) Sum = $\frac{3}{8} + \frac{5}{8} + \frac{6}{8}$
 $= \frac{3+5+6}{8} = \frac{14}{8} = 1\frac{6}{8} = 1\frac{3}{4}$

2. (c) Difference = $\frac{15}{17} - \frac{12}{17} = \frac{3}{17}$

(g) Difference = $\frac{8}{12} - \frac{5}{12} = \frac{\cancel{2}^1}{\cancel{12}_4} = \frac{1}{4}$

Checkpoint 6F

1. Apples used for making apple jam = $\frac{3}{15}$ of a bag

Apples used for making apple juice
 $= \frac{4}{15}$ of the bag

Total apples used by Gurveen

$$= \left(\frac{3}{15} + \frac{4}{15} \right) \text{ of the bag}$$

$$= \frac{7}{15} \text{ of the bag}$$

2. Part of savings given by father to his elder son

$$= \frac{1}{7}$$

Part of savings given by the father to his younger son = $\frac{5}{7}$

$$\text{Since } \frac{5}{7} > \frac{1}{7}$$

Therefore, the father give more part of his savings to his younger son.

3. Marks got by Samar in English = $\frac{23}{50}$

$$\text{Marks got by Samar in Maths} = \frac{43}{50}$$

Difference of marks in the two subjects

$$= \frac{43}{50} - \frac{23}{50} = \frac{20}{50}$$

5. Sum of $\frac{2}{17}$ and $\frac{3}{17}$

$$= \frac{2}{17} + \frac{3}{17} = \frac{5}{17}$$

$$\text{Difference} = \frac{5}{17} - \frac{5}{17} = 0$$

Let Us Assess

4. Fractions having 1 as the numerator are unit fractions. Thus, $\frac{1}{3}, \frac{1}{5}, \frac{1}{21}$ and $\frac{1}{100}$ are the unit fractions in the given collection.

5. (b) $13\frac{1}{5} = \frac{13 \times 5 + 1}{5} = \frac{65 + 1}{5} = \frac{66}{5}$

8. (b) $\frac{7}{13} + \frac{9}{13} = \frac{7+9}{13} = \frac{16}{13} = 1\frac{3}{13}$

9. Here, $\frac{11}{7} - \frac{5}{7} = \frac{6}{7}$

$$\text{Also, } \frac{6}{7} + \frac{5}{7} = \frac{11}{7} = 1\frac{4}{7}$$

Let's Work in Mind

2. $\frac{41}{9} = 41 \div 9 = 4\frac{5}{9}$

3. (a) $\frac{1}{3}$ of an hour

$$= \frac{1}{3} \times 1 \text{ hour} = \frac{1}{3} \times \frac{60}{1} \text{ minutes} \\ = 20 \text{ minutes}$$

5. $\frac{1}{7} + \frac{3}{7} = \frac{4}{7}$, And $1 - \frac{4}{7} = \frac{7}{7} - \frac{4}{7} = \frac{3}{7}$

$$\left(\text{Since, } 1 = \frac{1}{1} = \frac{1 \times 7}{1 \times 7} = \frac{7}{7} \right)$$