

Name : _____

Grade : VI

Subject : Mathematics

Chapter: 7. Fractions

Objective Type Questions

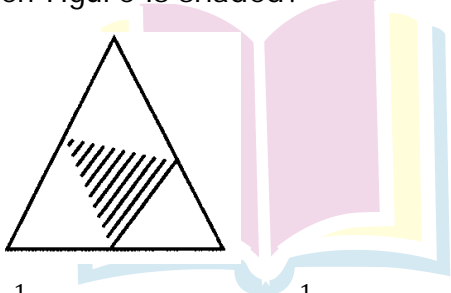
I. Multiple choice questions

1. The fraction which is not equal to $\frac{4}{5}$ is
a. $\frac{40}{50}$ b. $\frac{12}{15}$ c. $\frac{16}{20}$ d. $\frac{9}{15}$
2. If $\frac{5}{8} = \frac{20}{p}$, then value of p is
a. 23 b. 2 c. 32 d. 16
3. Which of the following is not in the lowest form?
a. $\frac{7}{5}$ b. $\frac{15}{20}$ c. $\frac{13}{33}$ d. $\frac{27}{28}$
4. Sum of $\frac{4}{17}$ and $\frac{15}{17}$ is
a. $2\frac{1}{17}$ b. $1\frac{2}{17}$ c. $3\frac{1}{17}$ d. $3\frac{2}{17}$
5. On subtracting $\frac{6}{13}$ from $\frac{11}{13}$, the result is
a. $\frac{5}{13}$ b. $\frac{2}{13}$ c. $\frac{3}{13}$ d. $\frac{8}{13}$
6. Which of the following fraction is smallest?
a. $\frac{16}{23}$ b. $\frac{17}{23}$ c. $\frac{9}{23}$ d. $\frac{11}{23}$
7. If $\frac{3}{4}$ is equivalent to $\frac{x}{24}$, then the value of x is
a. 15 b. 20 c. 16 d. 18
8. When $\frac{1}{4}$ is written with denominator as 12, its numerator is
a. 3 b. 8 c. 24 d. 12
9. The two consecutive integers between which the fraction $\frac{5}{7}$ lies are
a. 5 and 6 b. 0 and 1 c. 5 and 7 d. 6 and 7

10. $\frac{21}{19}$ can be expressed in form
 a. $2\frac{3}{19}$ b. $2\frac{1}{19}$ c. $1\frac{2}{19}$ d. $3\frac{1}{19}$
11. When $\frac{1}{7}$ is written with denominator as 56, its numerator is
 a. 3 b. 8 c. 24 d. 12
12. If $\frac{7}{9} = \frac{28}{p}$, then value of p is
 a. 23 b. 2 c. 36 d. 16

1. d	2. c	3. b	4. b	5. a	6. c
7. d	8. a	9. b	10. c	11. b	12. c

II. Multiple choice questions

1. Which of the following is not equal to the others?
 a. $\frac{6}{8}$ b. $\frac{12}{16}$ c. $\frac{15}{25}$ d. $\frac{18}{24}$
2. Which of the following fractions is the greatest?
 a. $\frac{5}{7}$ b. $\frac{5}{6}$ c. $\frac{5}{9}$ d. $\frac{5}{8}$
3. On subtracting $\frac{5}{9}$ from $\frac{19}{9}$, the result is:
 a. $\frac{24}{9}$ b. $\frac{14}{9}$ c. $\frac{14}{18}$ d. $\frac{14}{0}$
4. What fraction of the given figure is shaded?

 a. $\frac{1}{2}$ b. $\frac{1}{3}$ c. $\frac{1}{4}$ d. $\frac{2}{3}$
5. Which of the following is a proper fraction?
 a. $\frac{5}{4}$ b. $\frac{1}{4}$ c. $\frac{11}{4}$ d. $\frac{12}{4}$

6. Which of the following is the equivalent fraction for $\frac{2}{3}$ with denominator 18?

- a. $\frac{9}{18}$ b. $\frac{10}{18}$ c. $\frac{11}{18}$ d. $\frac{12}{18}$

7. Which of the following is the equivalent fraction of $\frac{3}{5}$ with denominator 50?

- a. $\frac{20}{30}$ b. $\frac{30}{50}$ c. $\frac{40}{50}$ d. $\frac{50}{50}$

8. Which of the following is the sum of $\frac{7}{12}$ & $\frac{3}{12}$?

- a. $\frac{4}{6}$ b. $\frac{21}{12}$ c. $\frac{4}{12}$ d. $\frac{5}{6}$

9. Which of the following is the difference between $\frac{7}{8}$ & $\frac{3}{8}$?

- a. $\frac{4}{5}$ b. $\frac{1}{2}$ c. $\frac{3}{2}$ d. $\frac{10}{5}$

10. $\frac{5}{8} + \frac{1}{8} = ?$

- a. $\frac{1}{4}$ b. $\frac{1}{2}$ c. $\frac{1}{16}$ d. none of these

11. $\frac{5}{8} + \frac{1}{8} = ?$

- a. $\frac{3}{8}$ b. $\frac{3}{4}$ c. 6 d. none of these

12. $\frac{5}{8} - \frac{1}{8} = ?$

- a. $\frac{1}{4}$ b. $\frac{1}{2}$ c. $\frac{1}{16}$ d. none of these

13. $4 \frac{3}{5} = ?$

- a. $\frac{17}{5}$ b. $\frac{23}{5}$ c. $\frac{17}{3}$ d. none of these

14. $\frac{34}{7} = ?$

- a. $3 \frac{4}{7}$ b. $7 \frac{3}{4}$ c. $4 \frac{6}{7}$ d. none of these

15. The smallest of the fraction $\frac{6}{11}, \frac{7}{11}, \frac{8}{11}, \frac{9}{11}$

- a. $\frac{6}{11}$ b. $\frac{7}{11}$ c. $\frac{8}{11}$ d. $\frac{9}{11}$

16. The smallest of the fractions $\frac{3}{4}, \frac{5}{6}, \frac{7}{12}, \frac{2}{3}$ is :

- a. $\frac{2}{3}$ b. $\frac{3}{4}$ c. $\frac{5}{6}$ d. $\frac{7}{12}$

17. Which of the following is a proper fraction?

a. $\frac{3}{4} < \frac{3}{5}$

b. $\frac{3}{4} > \frac{3}{5}$

c. can't be compared

d. none of these

18. The smallest of the fractions $\frac{3}{5}, \frac{2}{3}, \frac{5}{6}, \frac{7}{10}$ is :

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

b. $\frac{7}{10}$

c. $\frac{3}{5}$

d. $\frac{5}{6}$

19. The largest of the fractions $\frac{4}{5}, \frac{4}{7}, \frac{4}{9}, \frac{4}{11}$ is :

a. $\frac{4}{11}$

b. $\frac{4}{5}$

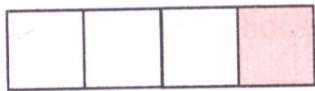
c. $\frac{4}{7}$

d. $\frac{4}{9}$

1. c	2. b	3. b	4. c	5. b	6. d	7. b
8. d	9. b	10. b	11. b	12. b	13. c	14. a
15. d	16. a	17. b	18. c	19. b		

III. Multiple choice questions

1. The fraction representing the shaded portion is



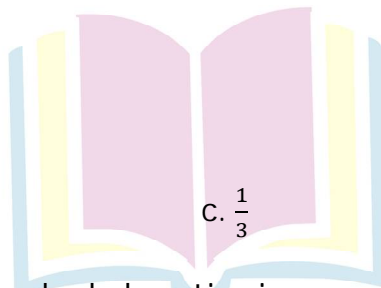
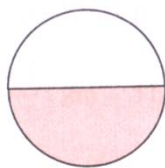
a. $\frac{1}{4}$

b. $\frac{3}{4}$

c. $\frac{1}{2}$

d. $\frac{1}{8}$

2. The fraction representing the shaded portion is



a. $\frac{1}{4}$

b. $\frac{1}{2}$

c. $\frac{1}{3}$

d. $\frac{1}{8}$

3. The fraction representing the shaded portion is



a. $\frac{1}{4}$

b. $\frac{1}{2}$

c. $\frac{3}{4}$

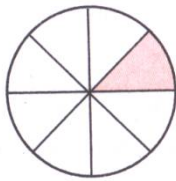
d. none of these

4. The fraction representing the shaded portion is



- a. $\frac{1}{4}$ b. $\frac{1}{2}$ c. $\frac{1}{6}$ d. none of these

5. The fraction representing the shaded portion is



- a. $\frac{1}{2}$ b. $\frac{1}{4}$ c. $\frac{1}{3}$ d. $\frac{1}{8}$

6. What fraction of ₹ 1 is 50 paise?

- a. $\frac{1}{2}$ b. $\frac{1}{4}$ c. $\frac{1}{8}$ d. $\frac{1}{10}$

7. What fraction of ₹ 1 is 25 paise?

- a. $\frac{1}{2}$ b. $\frac{1}{4}$ c. $\frac{1}{8}$ d. $\frac{1}{10}$

8. What fraction of an hour is 30 minutes?

- a. $\frac{1}{4}$ b. $\frac{1}{2}$ c. $\frac{1}{3}$ d. $\frac{1}{5}$

9. What fraction of a day is 12 hours?

- a. $\frac{1}{2}$ b. $\frac{1}{4}$ c. $\frac{1}{3}$ d. $\frac{1}{6}$

10. Which of the following is a proper fraction?

- a. $\frac{1}{2}$ b. $\frac{5}{4}$ c. $\frac{3}{2}$ d. $\frac{9}{2}$

11. Which of the following is a proper fraction?

- a. $\frac{0}{1}$ b. $\frac{5}{2}$ c. $\frac{7}{4}$ d. $\frac{11}{3}$

12. Which of the following is a proper fraction whose numerator is 1 and denominator is 3?

- a. $\frac{1}{3}$ b. $\frac{1}{6}$ c. $\frac{1}{9}$ d. $\frac{1}{12}$

13. Which of the following is an improper fraction?

- a. $\frac{2}{3}$ b. $\frac{3}{4}$ c. $\frac{4}{5}$ d. $\frac{5}{4}$

14. Which of the following is an improper fraction?

- a. $\frac{1}{4}$ b. $\frac{3}{8}$ c. $\frac{11}{3}$ d. $\frac{2}{5}$

15. Express $\frac{5}{2}$ as a mixed fraction.

- a. $1\frac{1}{2}$ b. $2\frac{1}{2}$ c. $3\frac{1}{2}$ d. $4\frac{1}{2}$

16. Express $\frac{9}{4}$ as a mixed fraction

- a. $2\frac{1}{4}$ b. $3\frac{1}{4}$ c. $4\frac{1}{4}$ d. $5\frac{1}{4}$

17. Express the mixed fraction $1\frac{1}{2}$ as an improper fraction.

- a. $\frac{2}{3}$ b. $\frac{3}{2}$ c. $\frac{3}{4}$ d. none of these

18. Express the mixed fraction $2\frac{3}{4}$ as an improper fraction

- a. $\frac{11}{4}$ b. $\frac{4}{11}$ c. $\frac{9}{11}$ d. $\frac{7}{11}$

19. The simplest form of $\frac{12}{20}$ is

- a. $\frac{1}{5}$ b. $\frac{2}{5}$ c. $\frac{3}{5}$ d. $\frac{4}{5}$

20. The simplest form of $\frac{45}{20}$ is

- a. $\frac{9}{4}$ b. $\frac{4}{9}$ c. $\frac{9}{8}$ d. $\frac{2}{9}$

21. Which of the following fractions is not equivalent to $\frac{1}{3}$?

- a. $\frac{5}{15}$ b. $\frac{6}{18}$ c. $\frac{4}{12}$ d. $\frac{7}{20}$

22. Which of the following fractions is equivalent to $\frac{3}{4}$?

- a. $\frac{6}{11}$ b. $\frac{9}{10}$ c. $\frac{15}{20}$ d. $\frac{21}{25}$

23. The equivalent fraction of $\frac{2}{5}$ with numerator 4 is

- a. $\frac{4}{10}$ b. $\frac{4}{12}$ c. $\frac{4}{16}$ d. $\frac{4}{20}$

24. The equivalent fraction of $\frac{20}{36}$ with denominator 9 is

- a. $\frac{4}{9}$ b. $\frac{5}{9}$ c. $\frac{7}{9}$ d. $\frac{8}{9}$

25. Which of the following pairs of fractions are equivalent?

- a. $\frac{1}{2}, \frac{2}{4}$ b. $\frac{1}{3}, \frac{3}{7}$ c. $\frac{2}{5}, \frac{4}{9}$ d. $\frac{4}{7}, \frac{8}{13}$

26. Which of the following pairs of fractions are not equivalent?

- a. $\frac{1}{2}, \frac{2}{3}$ b. $\frac{4}{5}, \frac{12}{15}$ c. $\frac{6}{7}, \frac{12}{14}$ d. $\frac{4}{9}, \frac{36}{81}$

27. Which of the following pairs of fractions are like fractions?

- a. $\frac{1}{5}, \frac{4}{5}$ b. $\frac{2}{3}, \frac{3}{4}$ c. $\frac{4}{5}, \frac{5}{6}$ d. $\frac{5}{6}, \frac{6}{7}$

28. Which of the following pairs of fractions are unlike fractions?

- a. $\frac{2}{3}, \frac{3}{5}$ b. $\frac{1}{6}, \frac{6}{7}$ c. $\frac{2}{9}, \frac{5}{9}$ d. $\frac{4}{13}, \frac{12}{13}$

29. Apala typed 50 pages of a book containing 100 pages. Meenu typed 25 pages of the same book. Who typed more fractions of pages of the book?

- a. Apala b. Meenu c. Neither a and b d. cannot say.

30. $\frac{1}{3} + \frac{2}{3} =$

- a. 1 b. 2 c. 3 d. none of these

31. $\frac{1}{3} + \frac{1}{3} + \frac{1}{3} =$

- a. 1 b. 2 c. 3 d. none of these

32. $\frac{1}{4} + \frac{1}{4} + \frac{1}{4} + \frac{1}{4} =$

- a. 1 b. 2 c. 4 d. 8

33. $\frac{5}{4} - \frac{1}{4} =$

- a. 1 b. 4 c. 5 d. none of these

34. $\frac{8}{10} - \frac{3}{10} =$

- a. $\frac{1}{2}$ b. $\frac{1}{5}$ c. $\frac{1}{10}$ d. none of these

35. $1 - \frac{1}{2} =$

a. $\frac{1}{2}$

b. 1

c. $-\frac{1}{2}$

d. $\frac{1}{4}$

36. $\frac{0}{1} = \frac{0}{1} =$

a. 0

b. 1

c. -1

d. 2

37. $\frac{8}{15} - ? = \frac{7}{15}$

a. $\frac{1}{15}$

b. $\frac{2}{15}$

c. $\frac{4}{15}$

d. $\frac{7}{15}$

38. $? \frac{1}{4} = \frac{1}{4}$

a. $\frac{1}{4}$

b. $\frac{1}{2}$

c. $\frac{3}{4}$

d. $\frac{5}{4}$

39. $? + \frac{2}{7} = \frac{5}{7}$

a. $\frac{1}{7}$

b. $\frac{2}{7}$

c. $\frac{3}{7}$

d. $\frac{4}{7}$

40. $\frac{25}{5} - \frac{15}{5} =$

a. 1

b. 2

c. 5

d. 3

41. $\frac{1}{2} - \frac{1}{4} =$

a. $\frac{1}{4}$

b. $\frac{1}{2}$

c. $\frac{1}{8}$

d. $\frac{1}{3}$

42. $1\frac{1}{2} + 2\frac{1}{2}$

a. 1

b. 2

c. 3

d. 4

43. Apala bought $2\frac{1}{2}$ kg of potatoes whereas Meenu bought $1\frac{1}{2}$ kg of potatoes. Find the total amount of potatoes purchased by Apala and Meenu both.

a. 1 kg

b. 2 kg

c. 3 kg

d. 4 kg

44. A teacher finished $\frac{3}{4}$ of his course. How much course is left?

a. $\frac{1}{2}$

b. $\frac{1}{4}$

c. $\frac{1}{6}$

d. $\frac{1}{3}$

45. Manish read $\frac{5}{6}$ part of a book. Preeti read $\frac{1}{6}$ part of that book. What more part was read by Manish?

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

b. $\frac{1}{6}$

c. $\frac{5}{6}$

d. none of these

IV. Multiple choice questions

1. The fraction representing prime number between 1 and 20 is
a. $\frac{2}{5}$ b. $\frac{4}{9}$ c. $\frac{9}{20}$ d. $\frac{1}{2}$
2. Which of the following fraction is the smallest?
a. $\frac{5}{7}$ b. $\frac{5}{11}$ c. $\frac{5}{4}$ d. $\frac{5}{8}$
3. Which of the following fraction is the greatest?
a. $\frac{5}{7}$ b. $\frac{5}{6}$ c. $\frac{5}{9}$ d. $\frac{5}{8}$
4. Which of the following is not equal to the others?
a. $\frac{6}{8}$ b. $\frac{12}{16}$ c. $\frac{15}{25}$ d. $\frac{18}{24}$
5. Which of the following is a proper fractions?
a. $\frac{7}{8}$ b. $1\frac{7}{8}$ c. $\frac{8}{7}$ d. none of these
6. A fraction equivalent to $\frac{4}{5}$ is
a. $\frac{4+2}{5+2}$ b. $\frac{4-2}{5-2}$ c. $\frac{4 \times 2}{5 \times 2}$ d. none of these
7. The correct fraction in the box is - $\frac{5}{8} = \frac{1}{4}$
a. $\frac{6}{8}$ b. $\frac{7}{8}$ c. $\frac{1}{2}$ d. none of these
8. A circle is divided into certain number of equal parts. If 15 of the parts so formed represent the fraction $\frac{3}{5}$, the number of parts in which the circle has been divided is
a. 45 b. 75 c. 20 d. 25

1. a	2. b	3. b	4. c	5. a	6. c	7. b	8. d
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I. Fill in the blanks

1. A number representing a part of a _____ is called a fraction.
2. A fraction with numerator greater than the denominator is called an _____ fraction.
3. Fractions with the same denominator are called _____ fractions.
4. $13\frac{5}{18}$ is a _____ fraction
5. $\frac{21}{13}$ is an _____ fraction
6. $\frac{7}{9}$ and $\frac{5}{9}$ are _____ proper fractions.
7. The fraction $\frac{25}{40}$ in simplest form is _____.
8. $2\frac{5}{7}$ is equal to the improper fraction _____.
9. $\frac{19}{7}$ is equal to the mixed fraction _____.
10. $\frac{5}{17} + \frac{11}{17}$ is equal to _____.
11. 1 whole = _____ tenths

1. whole	2. improper	3. like	4. mixed	5. improper	6. like
7. $\frac{5}{8}$	8. $\frac{19}{7}$	9. $2\frac{5}{7}$	10. $\frac{16}{17}$	11. 10	

II. Fill in the blanks

1. A fraction with denominator greater than the numerator is called a _____ fraction.
2. $\frac{18}{5}$ is an _____ fraction.
3. $\frac{7}{19}$ is a _____ fraction.
4. $\frac{5}{8}$ and $\frac{3}{8}$ are _____ proper fractions
5. $\frac{6}{11}$ and $\frac{6}{13}$ are _____ proper fractions.
6. The fraction $\frac{6}{15}$ in simplest form is _____.

7. The fraction $\frac{17}{34}$ in simplest form is _____.

8. $\frac{18}{135}$ and $\frac{90}{675}$ are proper, unlike and _____ fractions.

9. $8\frac{2}{7}$ is equal to the improper fraction _____.

10. $\frac{87}{7}$ is equal to the mixed fraction _____.

11. $9\frac{2}{3} + \underline{\hspace{2cm}} = 19$

12. $7 - 5\frac{2}{3} = \underline{\hspace{2cm}}$.

13. $\frac{42}{54} = \underline{\hspace{2cm}}$.

14. $6\frac{1}{6} - \underline{\hspace{2cm}} = \frac{29}{30}$

15. $\frac{72}{90}$ reduced to simplest form is _____.

1. Proper	2. improper	3. proper	4. like	5. unlike
6. $\frac{2}{5}$	7. $\frac{1}{2}$	8. equivalent	9. $\frac{58}{7}$	10. $12\frac{3}{7}$
11. $9\frac{1}{3}$	12. $1\frac{1}{3}$	13. 9	14. $5\frac{1}{5}$	15. $\frac{4}{5}$

I. Match the followings

a) $\frac{6}{4}$	
b. $\frac{6}{10}$	
c. $\frac{7}{7}$	
d. $\frac{6}{16}$	
e. $\frac{6}{7}$	

a) iv	b) i	c) v	d) ii	e. iii
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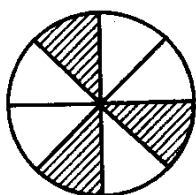
II. Match the followings

i) A fraction with numerator 1 is	a) Proper fraction
ii) A fraction whose numerator is greater	b) Positive rational number
iii) A fraction whose denominator is greater than numerator	c) Unit fraction
iv) Fraction are also defined as	d) Like fraction
v) Fractions with same denominator	e) Improper fraction

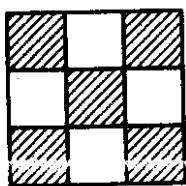
i) c	ii) e	iii) a	iv) b	v) d
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I. True or False

1. Fraction $\frac{19}{39}$ is in its lowest form.
2. Fractions $\frac{7}{9}$ and $\frac{42}{54}$ are equivalent fractions.
3. Sum of two fractions is always a fraction.
4. The result obtained by subtracting a fraction from another fraction is necessarily a fraction.
5. If a whole of an object is divided into a number of equal parts, then each part represents a fraction.
6. The fraction represented by the shaded portion in the following figure is $\frac{3}{8}$



7. The fraction represented by the unshaded portion in the following figure is $\frac{5}{9}$



8. Sum of $\frac{5}{12}$ and $\frac{7}{12}$ is $1\frac{7}{12}$.

9. The value of $\frac{19}{23} - \frac{7}{23}$ is $\frac{12}{23}$.

10. The simplest form of $\frac{24}{50}$ is $\frac{12}{25}$.

11. All divided one fruit cake equally among six persons. The part of the cake he gave to each person is $\frac{1}{6}$

1. True	2. True	3. False	4. False	5. True	6. True
7. False	8. False	9. True	10. True	11. True	

II. True or False

1. Fraction with same numerator are called like fractions.

2. Fraction $\frac{18}{39}$ is in its lowest form.

3. Fractions $\frac{15}{39}$ and $\frac{45}{117}$ are equivalent fractions.

4. $\frac{25}{19} + \frac{6}{19} = \frac{31}{38}$

5. $\frac{8}{18} - \frac{8}{15} = \frac{8}{3}$

6. $\frac{7}{12} + \frac{11}{12} = \frac{3}{2}$

7. $3\frac{1}{3} > \frac{33}{10}$

8. $8 - 1\frac{5}{6} = 7\frac{1}{6}$

9. $\frac{1}{2}$, $\frac{1}{3}$ and $\frac{1}{4}$ are like fractions.

10. $\frac{3}{5}$ lies between 3 and 5.

11. Among $\frac{1}{2}$, $\frac{1}{3}$, $\frac{3}{4}$, $\frac{4}{3}$ the largest fraction is $\frac{4}{3}$
12. A fraction represents a part of the whole.
13. We can find infinite equivalent fractions for a given fraction.
14. All rational number are fractions
15. In Improper fraction numerator is greater than denominator
16. While reducing a fraction into its lowest terms, it is divided by their LCM.

1. False	2. False	3. True	4. False	5. False	6. True	7. True	8. False
9. False	10. False	11. True	12. True	13. True	14. False	15. True	16. False

I. Very Short Answer Type Questions

1. What is a fraction?

A fraction is a number representing a part of a whole. This whole may be a single object or a group of objects.

2. What are like fractions? Give examples.

Fractions with same denominator are called like fractions. e.g. $\frac{1}{5}$, $\frac{2}{5}$, $\frac{3}{5}$ are like fractions.

3. 30 seconds is what fraction of a minute?

We know that, 1 min = 60 s

i.e. 60 s = 1 min

$$30 \text{ s} = \frac{30}{60} \text{ min}$$

$$= \frac{1}{2} \text{ min}$$

So, 30 sec are $\frac{1}{2}$ of a minute.

4. What are unit fractions?

Fractions having numerator equal to 1 are called unit fractions.

5. What are equivalent fractions?

Fractions representing same part of the whole are called equivalent fractions.

6. What is the simplest form of a fraction?

In simplest form of a fraction, the numerator and denominator have 1 as the only common factor i.e. HCF (numerator and denominator) = 1

7. 3 mm is what fraction of a metre?

We know that, 1 m = 1000 mm

$$3 \text{ mm} = \frac{3}{1000} \text{ m}$$

So, 3 mm is $\frac{3}{1000}$ of a metre.

8. Name the fraction which are always less than 1.

We know that, proper fractions are always less than 1.

9. Write $\frac{2}{3}$ of 60 kg.

We have, $\frac{2}{3}$ of 60 kg = $\frac{2 \times 60}{3} = 2 \times 20 = 40$ kg

10. What fraction of the week in 3 days

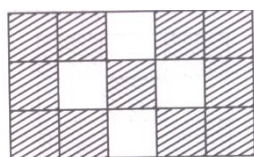
We know that, 1 week = 7 days

$$\therefore 3 \text{ days} = \frac{3}{7} \text{ week}$$

So, 3 days are $\frac{3}{7}$ of a week.

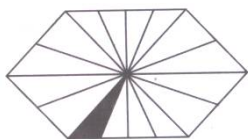
II. Very Short Answer Type Questions

1. Write the fraction represented by the unshaded portion of the adjoining figure:



$$\frac{4}{9}$$

2. How many parts of the following figure is shaded?



$$\frac{1}{12}$$

3. Express $6\frac{2}{3}$ as an improper fraction

$$\frac{20}{3}$$

4. Write as $\frac{129}{8}$ a mixed fraction.

$$16\frac{1}{8}$$

5. Write $\frac{3}{4}$ as a fraction with denominator 44.

$$\frac{3}{4} = \frac{3 \times 11}{4 \times 11} = \frac{33}{44} \text{ (To make denominator 44, we multiply Numerator \& Denominator by 11)}$$

6. Write $\frac{5}{6}$ as a fraction with numerator 60.

$$\frac{5}{6} = \frac{5 \times 12}{6 \times 12} = \frac{60}{72} \text{ (To make numerator 60, we multiply Numerator \& Denominator by 12)}$$

7. Add the fractions $\frac{3}{8}$ and $\frac{2}{3}$.

$$\begin{aligned} \text{Sum} &= \frac{3}{8} + \frac{2}{3} \\ &= \frac{3 \times 3}{8 \times 3} + \frac{2 \times 8}{3 \times 8} = \frac{9}{24} + \frac{16}{24} \\ &= \frac{9+16}{24} = \frac{25}{24} \end{aligned}$$

8. Subtract $\frac{1}{6}$ from $\frac{1}{2}$

$$\text{Difference} = \frac{1}{2} - \frac{1}{6} = \frac{1 \times 6}{2 \times 6} - \frac{1 \times 2}{6 \times 2}$$

$$= \frac{6}{12} - \frac{2}{12} = \frac{6-2}{12}$$

$$\frac{4}{12} = \frac{1}{3}$$

9. Ali divided one fruit cake equally among six persons. What part of the cake he gave to each person?

Given, total no. Of fruit cake = 1

Here, Ali divided fruit cake equally among six persons.

∴ The part of cake given to one person = $\frac{1}{6}$

Next Generation School

10. A cup is $\frac{1}{3}$ full of milk. What part of the cup is still to be filled by milk to make it full?

part of the cup is still to be filled by milk to make it full

$$\begin{aligned}
 &= 1 - \frac{1}{3} \\
 &= \frac{1 \times 3}{1 \times 3} - \frac{1}{3} \\
 &= \frac{3-1}{3} = \frac{2}{3}
 \end{aligned}$$

11. Grip size of a tennis racquet is $11 \frac{9}{80}$ cm. Express the size as an improper fraction.

Given, Grip size of a tennis racquet = $11 \frac{9}{80}$

Improper fraction of $11 \frac{9}{80} = \frac{889}{80}$ cm

III. Very Short Answer Type Questions

1. What fraction of a day is 8 hours?

$\frac{8}{24}$, as (1 day = 24 hours)

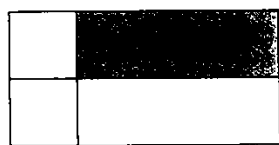
2. What fraction of an hour is 40 minutes?

$\frac{40}{60}$, as (1 hour = 60 minutes)

3. Identify the error, if any.



This is $\frac{1}{2}$



This is $\frac{1}{4}$

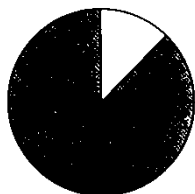


This is $\frac{3}{4}$

In each figure shaded portion do not represent the given fraction because of unequal parts.

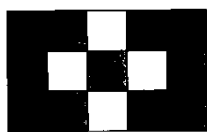
4. Write the fraction represented by the shaded portion of the adjoining fig

Shaded portion = $\frac{7}{8}$



Next Generation School

5. Write the fraction represented by the unshaded portion of the adjoining fig



Unshaded portion $\frac{4}{15}$

6. When $\frac{1}{4}$ is written with denominator as 12, what will be its numerator?

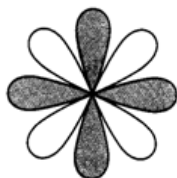
3

7. Write an improper fraction with denominator 8.

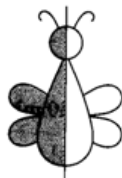
$\frac{11}{8}$

8. Write the fraction representing the shaded portion:

(i)



(ii)



$\frac{1}{2}$

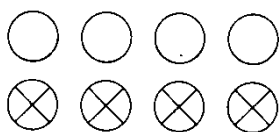
9. What fraction of the natural numbers from 2 to 12 are prime numbers?

$\frac{5}{11}$

10. What fraction of the natural numbers from 102 to 113 are prime numbers?

$\frac{3}{12}$

11. What fractions of these circles have 'X' s in them?



$\frac{4}{8}$



Next Generation School

I. Short Answer Type Questions

1. Write the natural numbers from 205 to 219. What fractions of them are odd numbers?

Natural numbers from 205 to 219 are 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219.

Total natural numbers = 15

Odd numbers = 8

∴ Required fraction

$$= \frac{\text{Odd numbers}}{\text{Natural numbers}} = \frac{8}{15}$$

2. Express the following as mixed fractions.

a) $\frac{15}{4}$

b) $\frac{25}{6}$

a) We have, improper fraction = $\frac{15}{4}$

$$\therefore \frac{15}{4} = 3 \frac{3}{4}$$

b) We have, improper fraction $\frac{25}{6}$

$$\therefore \frac{25}{6} = 4 \frac{1}{6}$$

3. Express the following as improper fraction.

a) $5\frac{1}{4}$

b) $7\frac{2}{3}$

a) We have, $5\frac{1}{4} = 5 + \frac{1}{4} = \frac{5 \times 4 + 1}{4} = \frac{21}{4}$

b) We have, $7\frac{2}{3} = 7 + \frac{2}{3} = \frac{7 \times 3 + 2}{3} = \frac{23}{3}$

4. Check whether the given fractions are equivalent.

a) $\frac{5}{7}, \frac{9}{12}$

a) We have, $\frac{5}{7}, \frac{9}{12}, \frac{5}{7} \neq \frac{9}{12}$

$$\Rightarrow 5 \times 12 = 9 \times 7$$

$$60 \neq 63$$

So, $\frac{5}{7}, \frac{9}{12}$ are not equivalent fractions.

5. Neelam's father needs $1\frac{3}{4}$ m of cloth for the skirt of Neelam's new dress and $\frac{1}{2}$ m for the scarf. How much cloth must he buy in all?

$$\text{Cloth required for skirt} = 1\frac{3}{4} \text{ m}$$

$$\text{Cloth required for scarf} = \frac{1}{2} \text{ m}$$

$$\therefore \text{Total cloth} = 1\frac{3}{4} + \frac{1}{2} \quad \text{m} = \frac{7}{4} + \frac{1}{2}$$

$$\left[\frac{7+2}{4} = \frac{9}{4} \right] \quad [\because \text{LCM of 2 and 4 is 4}]$$

$$= 2\frac{1}{4} \text{ m}$$

So, he must buy $2\frac{1}{4}$ m cloth.

6. Nasir travelled $3\frac{1}{2}$ km by bus and then walked $1\frac{1}{8}$ km to reach a town. How much did he travel to reach the town?

$$\text{Distance travelled by bus} = 3\frac{1}{2} \text{ km}$$

$$\text{Nasir walked to reach town} = 1\frac{1}{8} \text{ km}$$

$$\begin{aligned} \therefore \text{Total distance} &= 3\frac{1}{2} + 1\frac{1}{8} = \frac{7}{2} + \frac{9}{8} \\ &= \frac{28+9}{8} \quad [\because \text{LCM of 2 and 8 is 8}] \\ &= \frac{37}{8} = 4\frac{5}{8} \text{ km} \end{aligned}$$

7. Simplify the following:

a) $6 - \frac{3}{4}$ b) $\frac{7}{12} - \frac{4}{15}$

a) We have, $6 - \frac{3}{4} = \frac{6}{1} - \frac{3}{4}$

$$= \frac{28+9}{8} \quad [\because \text{LCM of 1 and 4 is 4}]$$

$$= \frac{21}{4} = 5\frac{1}{4}$$

b) We have, $\frac{7}{12} - \frac{4}{15} = \frac{35-16}{60}$

$$[\because \text{LCM of 12 and 15 is 60}]$$

$$\frac{19}{60}$$

8. Find the value of the following:

a) $\frac{6}{17} + \frac{3}{17} + \frac{11}{17}$ b) $\frac{1}{2} + \frac{3}{4} + 1\frac{1}{3}$

$$\text{We have, } \frac{6}{17} + \frac{3}{17} + \frac{11}{17} = \frac{6+3+11}{17} = \frac{20}{17} = 1\frac{3}{17}$$

b) We have, $\frac{1}{2} + \frac{3}{4} + 1\frac{1}{3} = \frac{1}{2} + \frac{3}{4} + \frac{4}{3}$
 $= \frac{6+9+16}{12}$ [\because LCM of 2, 4 and 3 is 12]
 $= \frac{31}{12} = 2\frac{7}{12}$

9. A cup is $\frac{1}{3}$ full of milk. What part of the cup is still to be filled by milk to make it full?

Given, cup is $\frac{1}{3}$ full of milk

\therefore Required milk = $1 - \frac{1}{3} = \frac{3-1}{3} = \frac{2}{3}$ full of milk

10. Mary bought $3\frac{1}{2}$ m of lace. She used $1\frac{3}{4}$ m of lace for her new dress. How much lace is left with her?

Mary bought lace = $3\frac{1}{2}$ m

Lace used for new dress = $1\frac{3}{4}$ m

\therefore Lace left with her = $3\frac{1}{2} - 1\frac{3}{4} = \frac{7}{2} - \frac{7}{4}$
 $= \frac{14-7}{4} = \frac{7}{4} = 1\frac{3}{4}$ m

So, $1\frac{3}{4}$ m lace is left with her

11. Grip size of a tennis racket is $12\frac{3}{20}$ cm.

The size of grip of tennis racket = $12\frac{3}{20}$ cm

$$= 12 + \frac{3}{20} = \frac{12 \times 20 + 3}{20}$$

$$= \frac{240+3}{20} = \frac{243}{20} \text{ cm}$$

12. Sunil purchased $12\frac{1}{2}$ L of juice on Monday and $14\frac{3}{4}$ L of juice on Tuesday.

How many litres of juice did he purchased together in two days?

Sunil purchased juice on Monday = $12\frac{1}{2}$ L

Juice purchased on Tuesday $14\frac{3}{4}$ L

\therefore Total juice purchased = $12\frac{1}{2} + 14\frac{3}{4} = \frac{25}{2} + \frac{59}{4}$
 $= \frac{50+59}{4} = \frac{109}{4} = 27\frac{1}{4}$ L

So, he purchased $27\frac{1}{4}$ L of juice in two days.

13. Nazima gave $2\frac{3}{4}$ L out of the $5\frac{1}{2}$ L of juice she purchased to her friends.

How many litres of juice is left with her?

Quantity of juice Nazima has = $5\frac{1}{2}$ L

She gave $2\frac{3}{4}$ L out of this to her friends

$$\begin{aligned} \text{Now, juice left with her} &= 5\frac{1}{2} - 2\frac{3}{4} \\ &= \frac{11}{2} - \frac{11}{4} = \frac{22-11}{4} = \frac{11}{4} = 2\frac{3}{4} \text{ L} \end{aligned}$$

So, $2\frac{3}{4}$ L of juice is left with her.

14. What fraction of a kg is 650 gm?

We know that, 1kg = 1000 g

$$\begin{aligned} \therefore 650 \text{ gm} &= \frac{650}{1000} \text{ kg} = \frac{65}{100} \\ &= \frac{65 \div 5}{100 \div 5} \quad [\because \text{HCF of 65 and 100 is 5}] \\ &= \frac{13}{20} \end{aligned}$$

So, 650 g is $\frac{13}{20}$ of a kg.

15. Find an equivalent fraction of $\frac{2}{3}$ having denominator equal to 18.

$$\text{Let } \frac{2}{3} = \frac{12}{18}$$

$$\text{Now, } \frac{2}{3} = \frac{2 \times 6}{3 \times 6} = \frac{12}{18}$$

So, equivalent fraction is $\frac{12}{18}$

16. Write $\frac{156}{60}$ in its lowest form.

We have, $\frac{156}{60}$

Now, we find the HCF of 156 and 60

HCF of 156 and 60 is 12.

$$\text{So, } \frac{156}{60} = \frac{156 \div 12}{60 \div 12} = \frac{13}{5}$$

17. Compare $4\frac{2}{3}$ and $5\frac{3}{7}$

We have, $4\frac{2}{3}$ and $5\frac{3}{7}$.

$$\text{Now, } 4\frac{2}{3} = \frac{4 \times 3 + 2}{3} = \frac{14}{3}$$

$$\text{and } 5\frac{3}{7} = \frac{5 \times 7 + 3}{7} = \frac{38}{7}$$

Now, let us compare $\frac{14}{3}$ and $\frac{38}{7}$ by cross multiplication.

We have, $\frac{14}{3} \times \frac{38}{7}$

$$14 \times 7 = 98 \text{ and } 38 \times 3 = 114$$

$$\therefore 114 > 98$$

$$\therefore \frac{38}{7} > \frac{14}{3}$$

$$\text{So, } 5\frac{3}{7} > 4\frac{2}{3}$$

18. Find the fraction that represents the number of natural numbers to total numbers in the collection 0, 1, 2, 3, 4, 5. What fraction will it be for whole numbers?

Given collection is 0, 1, 2, 3, 4, 5

Natural numbers = 1, 2, 3, 4, 5

\therefore The fraction of natural numbers to the collection = $\frac{5}{6}$

Now, whole numbers = 0, 1, 2, 3, 4, 5, 6

The fraction of whole numbers to the collection = $\frac{6}{6}$

i.e. $\frac{1}{1}$

II. Short Answer Type Questions

1. Arrange the fractions $\frac{6}{7}$, $\frac{7}{8}$, $\frac{4}{5}$ and $\frac{3}{4}$ in descending order.

Given fractions are $\frac{6}{7}$, $\frac{7}{8}$, $\frac{4}{5}$ and $\frac{3}{4}$

As, we have to arrange the given fractions in descending order, so we take L. C. M. of denominator of all fractions.

2	7, 8, 5, 4
2	7, 4, 5, 2
2	7, 2, 2, 1
5	7, 1, 5, 1
7	7, 1, 1, 1
	1, 1, 1, 1

$$\text{LCM} = 2 \times 2 \times 2 \times 5 \times 7$$

$$= 2^3 \times 5 \times 7$$

$$= 280$$

$$\text{Now, } \frac{6}{7}, \frac{7}{8}, \frac{4}{5}, \frac{3}{4}$$

$$= \frac{6 \times 40}{7 \times 40}, \frac{7 \times 35}{8 \times 35}, \frac{4 \times 56}{5 \times 56}, \frac{3 \times 70}{4 \times 70}$$

$$= \frac{240}{280}, \frac{245}{280}, \frac{224}{280}, \frac{210}{280}$$

$$= \frac{240}{280} > \frac{245}{280} > \frac{224}{280} > \frac{210}{280}$$

(∴ When denominator of fractions are same, the fraction having smaller numerator will be smaller)

∴ Descending order is $\frac{7}{8}, \frac{6}{7}, \frac{4}{5}, \frac{3}{4}$.

2. Arrange the fractions $\frac{2}{3}, \frac{3}{4}, \frac{1}{2}$ and $\frac{5}{6}$ in ascending order

Given fractions are $\frac{2}{3}, \frac{3}{4}, \frac{1}{2}$ and $\frac{5}{6}$

As we have to arrange fractions in ascending order, so we take L.C.M. of numerator of all fractions.

2	2, 3, 1, 5
3	1, 3, 1, 5
5	1, 1, 1, 5
1	1, 1, 1, 1

$$\therefore \text{LCM} = 2 \times 3 \times 5 = 30$$

$$\text{Now, } \frac{2}{3}, \frac{3}{4}, \frac{1}{2}, \frac{5}{6}$$

$$= \frac{2 \times 15}{3 \times 15}, \frac{3 \times 10}{4 \times 10}, \frac{1 \times 30}{2 \times 30}, \frac{5 \times 6}{6 \times 6}$$

$$= \frac{30}{45}, \frac{30}{40}, \frac{30}{60}, \frac{30}{36}$$

$$= \frac{30}{45} < \frac{30}{40} < \frac{30}{60} < \frac{30}{36}$$

(∴ When numerators of fractions are same the fraction having smaller denominator will be greater)

Thus, ascending order is $\frac{1}{2}, \frac{2}{3}, \frac{3}{4}, \frac{5}{6}$

3. Add the fractions $\frac{3}{8}$ and $6\frac{3}{4}$

Given fractions are $\frac{3}{8}$ and $6\frac{3}{4}$

First convert mixed fraction in improper fraction.

$$\text{i.e., } 6\frac{3}{4} = \frac{27}{4}$$

$$\begin{aligned} \text{Now, sum} &= \frac{3}{8} + \frac{27}{4} \\ &= \frac{3}{8} + \frac{27 \times 2}{4 \times 2} \\ &= \frac{3}{8} + \frac{54}{8} = \frac{57}{8} \\ &= 4\frac{1}{8} \end{aligned}$$

4. Subtract $8\frac{1}{3}$ from $\frac{100}{9}$.

Given fractions are $8\frac{1}{3}$ and $\frac{100}{9}$

First, convert mixed fraction into improper fraction.

$$\text{i.e., } 8\frac{1}{3} = \frac{25}{3}$$

$$\begin{aligned} \text{Now, difference} &= \frac{100}{9} - \frac{25}{3} \\ &= \frac{100}{9} - \frac{25}{3} \\ &= \frac{100}{9} - \frac{75}{9} \\ &= \frac{100-75}{9} = \frac{25}{9} \\ &= 2\frac{7}{9} \end{aligned}$$

5. Subtract $1\frac{1}{4}$ from $6\frac{1}{2}$

First, convert given mixed fractions in improper fraction.

$$\text{i.e., } 1\frac{1}{4} = \frac{5}{4} \text{ and } 6\frac{1}{2} = \frac{13}{2}$$

$$\begin{aligned} \text{Now difference} &= \frac{13}{2} - \frac{5}{4} \\ &= \frac{13 \times 2}{2 \times 2} - \frac{5}{4} \\ &= \frac{26-5}{4} - \frac{5}{4} \\ &= \frac{26-5}{4} = \frac{21}{4} \\ &= 5\frac{1}{4} \end{aligned}$$

6. Add $1\frac{1}{4}$ and $6\frac{1}{2}$

First, convert the given mixed fractions in improper fraction.

$$\text{i.e., } 1\frac{1}{4} = \frac{5}{4} \text{ and } 6\frac{1}{2} = \frac{13}{2}$$

$$\begin{aligned} \text{Now, sum} &= \frac{5}{4} + \frac{13}{2} \\ &= \frac{5}{4} + \frac{26}{4} \\ &= \frac{5+26}{4} = \frac{31}{4} \\ &= 7\frac{3}{4} \end{aligned}$$

7. What fraction of a straight angle is a right angle?

We know that,

$$\text{Straight angle} = 180^\circ$$

$$\text{and right angle} = 90^\circ$$

Hence, fraction of a straight angle to a right angle

$$\begin{aligned} &= \frac{90^\circ}{180^\circ} \\ &= \frac{1}{2} \end{aligned}$$

8. What should be added to $9\frac{2}{3}$ to get 19?

Let the number = x

According to problem,

$$9\frac{2}{3} + x = 19$$

$$\text{or } \frac{29}{3} + x = 19$$

$$\text{or } x = 19 - \frac{29}{3}$$

$$\text{or } x = \frac{28}{3}$$

$$\text{or } x = 9\frac{1}{3}$$

Hence, required fraction = $9\frac{1}{3}$

9. What should be subtracted from $5\frac{3}{2}$ to get 5?

Let the fraction = x

According to problem,

$$= 5 \frac{3}{2} - x = 5$$

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

or $\frac{13}{2} = 5 + x$

or $x = \frac{13}{2} - \frac{5}{1}$

or $x = \frac{13-10}{2}$

or $x = \frac{3}{2}$

Hence required fraction = $\frac{3}{2}$

10. Convert 2009 paise to rupee and express the result as a mixed fraction.

We know that,

$$1 \text{ paise} = \frac{1}{100} \text{ rupee}$$

$$\therefore 2009 \text{ paise} = \frac{2009}{100} \text{ rupee} = ₹ 20.09$$

Now, $100 \overline{)2009}20$

2000

9

When we divide 2009 by 100, we get

Quotient = 20 and Remainder = 9

$$\frac{2009}{100} = 20 \frac{9}{100}$$

11. Convert 1537 cm to metre and express the result in an improper fraction.

We know that

$$1 \text{ cm} = \frac{1}{100} \text{ m}$$

$$\therefore 1537 \text{ cm} = \frac{1537}{100} \text{ m} = 15:37 \text{ m}$$

Now, $100 \overline{)1537}15$

100

537

500

37

When we divide 1537 by 100, we get

Quotient = 15 and Remainder = 37

$$\frac{1537}{100} = 15 \frac{37}{100}$$

12. Convert 2435 m to km and express the result as mixed fraction.

We know that,

$$1 \text{ m} = \frac{1}{1000} \text{ km}$$

$$\therefore 2435 \text{ m} = \frac{2435}{1000} \text{ km} = 2.435 \text{ km}$$

Now, $1000 \overline{)2435} (2$

2000

435

When we divide 2435 by 1000, we get

Quotient = 2 and Remainder = 435

$$\therefore \frac{2435}{1000} = 2 \frac{435}{1000}$$

13. Convert 5201 g to kg

We know that,

$$1 \text{ g} = \frac{1}{1000} \text{ kg}$$

$$\therefore 5201 \text{ g} = \frac{5201}{1000} \text{ kg} = 5.201 \text{ kg}$$

Now, $1000 \overline{)5201} (5$

5000

201

When, we divide 5201 by 1000, we get

Quotient = 5 and Remainder = 201.

14. On an average $\frac{1}{10}$ of the food eaten is turned into organism's own body and is available for the next level of consumer in a food chain. What fraction of the food eaten is not available for the next level?

Let the complete eaten food be 1.

Part of eaten food which is available for next level

$$= \frac{1}{10}$$

$$\therefore \text{Remaining part of eaten food} = \frac{1}{1} - \frac{1}{10}$$

Here, L.C.M of 1 and 10 = 10

$$\therefore \frac{1}{1} = \frac{1 \times 10}{1 \times 10} = \frac{10}{10}$$

$$\text{Now, } \frac{1}{1} - \frac{1}{10} = \frac{10}{10} - \frac{1}{10} = \frac{10-1}{10} = \frac{9}{10}$$

15. **Energy content of different foods are as follows:**

Food	Energy Content per kg
Wheat	3.2 Joule
Rice	5.3 Joule
Potatoes (Cooked)	3.7 Joule
Milk	3.0 Joule

Which food provides the least energy and which provides the maximum?

Express the least energy as a fraction of the maximum energy.

In the given table, we see that minimum value is 3.0 J and maximum value is 5.3 J.

Now, least energy provided by the food = 3.0 J

Maximum energy provided by the food = 5.3 J

$$\therefore \text{Required fraction} = \frac{\text{Least energy}}{\text{Maximum energy}}$$

$$= \frac{3.0}{5.3}$$

$$= \frac{30}{53}$$

16. Roma gave a wooden board of length $150 \frac{1}{4}$ cm to a carpenter for making a shelf. The carpenter sawed off a piece of $40 \frac{1}{5}$ cm from it. What is the length of the remaining piece?

Given, length of a wooden board = $150 \frac{1}{4}$ cm

$$= \frac{601}{4} \text{ cm}$$

Carpenter sawed off a piece of wooden board = $40 \frac{1}{5}$ cm = $\frac{201}{5}$ cm

$$\begin{aligned} \text{Length of the remaining piece} &= \frac{601 \times 5}{4 \times 5} - \frac{201 \times 4}{5 \times 4} \\ &= \frac{3005}{20} - \frac{804}{20} \\ &= \frac{3005 - 804}{20} = \frac{2201}{20} \text{ cm} \end{aligned}$$

Hence, the length of remaining pieces is $\frac{2201}{20}$ cm

III. Short Answer Type Questions

1. Fill in the blanks.

- i) A number representing a part of a _____ is called a fraction.
- ii) The fraction $\frac{6}{15}$ in simplest form is _____.
- iii) $\frac{87}{7}$ is equal to the mixed fraction _____.
- iv) Fractions with the same denominator are called _____ fractions.

i) Whole	ii) $\frac{2}{5}$	iii) $12\frac{3}{7}$	iv) Like
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2. Express $6\frac{2}{3}$ as an improper fraction.

We have,

$$\begin{aligned} 6\frac{2}{3} &= \frac{6 \times 3 + 2}{3} \\ &= \frac{18 + 2}{3} = \frac{20}{3} \end{aligned}$$

3. Write $\frac{129}{8}$ as a mixed fraction.

$$\begin{array}{r} \frac{129}{8} \\ 16 \\ \hline 8 \overline{)129} \\ \underline{8} \\ 49 \\ \underline{48} \\ 1 \end{array}$$

1 i.e., 16 whole and $\frac{1}{8}$ more or $16\frac{1}{8}$

4. Subtract $\frac{1}{6}$ from $\frac{1}{2}$.

We have,

$$\frac{1}{2} - \frac{1}{6}$$

LCM of 2 and 6 = 6

$$\therefore \frac{1}{2} - \frac{1}{6} = \frac{3-1}{6} = \frac{2}{6} = \frac{1}{3}$$

5. Kristin received a CD player for her birthday. She bought 3 CDs and received 5 others as gifts. What fraction of her total CDs did she buy and what fraction did she receive as gifts?

Here, we have

CDs received as gifts = 5

CDs she bought = 3

Total CDs = 3 + 5 = 8

Now, fraction of her total CDs she bought = $\frac{\text{CDs she bought}}{\text{Total CDs}} = \frac{3}{8}$

6. Ramesh had 20 pencils, Sheelu had 50 pencils and Jammal had 80 pencils.

After 4 months. Ramesh used up 10 pencils, Sheelu used up 25 pencils and Jamaal used up 40 pencils. What fraction did each use up? Check if each has used up an equal fraction of her/his pencils?

Pencils with Ramesh = 20

Pencils with Sheelu = 50

Pencils with Jammal = 80

Pencils used by Ramesh = 10

Pencil used by sheelu = 25

Pencils used by Jammal = 40

Fraction of pencils used by Ramesh = $\frac{\text{Pencils used}}{\text{Total Pencils}} = \frac{10}{20} = \frac{1}{2}$

Fraction of pencils used by Sheelu = $\frac{25}{50} = \frac{1}{2}$

Fraction of pencils used by Jammal = $\frac{40}{80} = \frac{1}{2}$

Yes, each has used up equal fraction of pencils.

9. Mr. Rajan got a job at the age of 24 years and he got retired from the job at the age of 60 years. What fraction of his age till retirement was he in the job?

Rajan got the job = 24 years

Rajan retired from the job = 60 years

Time till Rajan was in job = $(60 - 24) = 36$ years

Fraction of his age in the job till retirement = $\frac{36}{60} = \frac{3}{5}$.

10. When Sunita weighed herself on Monday, she found that she had gained $1\frac{1}{4}$ kg. Earlier her weight was $46\frac{3}{8}$ kg. What was her weight on Monday?

Sunita's earlier weight = $46\frac{3}{8}$ kg.

$$= \frac{46 \times 8 + 3}{8} = \frac{368 + 3}{8} = \frac{371}{8}$$

Sunita's gained weight = $1\frac{1}{4}$ kg

$$= \frac{1 \times 4 + 1}{4} = \frac{5}{4} \text{ kg}$$

Sunita's weight on Monday = $\frac{371}{8} = \frac{5}{4}$

$$= \frac{371 + 5 \times 2}{8} = \frac{381}{8} = 47\frac{5}{8} \text{ kg}$$

I. Long Answer Type Questions

1. It was estimated that because of people switching to Metro trains, about 33000 tonne of CNG, 3300 tonne of diesel and 21000 tonne of petrol was saved by the end of year 2007. Find the fraction of

Given, quantity of CNG saved = 33000 tonne

Quantity of diesel saved = 3300 tonne

Quantity of petrol saved = 21000 tonne

i) the quantity of diesel saved to the quantity of petrol saved.

The fraction of the quantity of diesel saved to the quantity of petrol saved

$$\begin{aligned}
 &= \frac{3300}{21000} \\
 &= \frac{33}{210} = \frac{33+3}{210+3} \quad [\because \text{HCF of 33 and 210 is 3}] \\
 &= \frac{11}{70}
 \end{aligned}$$

ii) the quantity of diesel saved to the quantity of CNG saved.

The fraction of the quantity of diesel to the quantity of

$$\text{CNG saved} = \frac{33000}{33000} = \frac{33}{330} = \frac{33+33}{330+33} = \frac{1}{10}$$

2. On an average, $\frac{1}{10}$ of the food eaten is turned into organism's own body and is available for the next level of consumer in a food chain. What fraction of the food eaten is not available for the next level?

Quantity of food eaten which turned into organism's own body = $\frac{1}{10}$ of the total food

$$\begin{aligned}
 \text{Now, the quantity of food eaten which is not available for the next level} &= 1 - \frac{1}{10} \\
 &= \frac{10-1}{10} = \frac{9}{10}
 \end{aligned}$$

Hence, the required fraction = $\frac{9}{10}$

3. From school X out of 750 students, 250 were selected for an essay writing and from another school Y out of 1200 students, 300 were selected. From which school, more students were selected?

Total students in school = 750

Selected students = 250

\therefore Fraction of selected students to the total students

$$= \frac{250}{750} = \frac{1}{3}$$

Now, total students in school Y = 1200

Selected students = 300

\therefore Fraction of selected students to the total students

$$\frac{300}{1200} = \frac{1}{4}$$

From Eqs. (i) and (ii).

$$\frac{1}{3} > \frac{1}{4} \quad [\because 4 > 3]$$

Hence, from the school X, more students were selected.

4. A rectangle is divided into certain number of equal parts. If 16 of the parts so formed represent the fraction $\frac{1}{4}$, find the number of parts in which the rectangle has been divided.

Let a rectangle be divide into X equal parts.

Now, 16 of the parts represent $= \frac{1}{4}$

$$\therefore \frac{16}{X} = \frac{1}{4} \Rightarrow X = 16 \times 4 \Rightarrow X = 64 \text{ parts}$$

Hence, rectangle is divided into 64 equal parts

5. Riya saves $\frac{1}{3}$ of her salary. She spends $\frac{1}{2}$ of the remaining and gives the left amount to charity.

- a) Find the fraction she gives for charity?

Riya's saving $= \frac{1}{3}$ of her salary

Remaining salary $= 1 - \frac{1}{3} = \frac{2}{3}$

She spends $= \frac{1}{2}$ of $\frac{2}{3} = \frac{1}{2} \times \frac{2}{3} = \frac{2}{6} = \frac{1}{3}$

She gives for charity $= \frac{2}{3} - \frac{1}{3} = \frac{2-1}{3} = \frac{1}{3}$

The fraction she gives for charity $= \frac{1}{3}$

- b) Mention the values you depict from this

The values depict from this are:

Helpfulness, caring for poor people and cooperation.

6. A square is divided into certain number of equal parts. If 15 of the parts, so formed represent the fraction $\frac{1}{5}$, find the number of parts in which the rectangle has been divided.

We know that, a part represents by fraction as $\frac{1}{5}$.

\therefore Fraction of their parts $= \frac{\text{Number of parts}}{\text{Total number of parts}}$

$$\frac{1}{5} = \frac{15}{\text{Total number of parts}}$$

\Rightarrow Total number of parts $= 5 \times 15 = 75$ [by cross - product]

Hence, the total number of parts are 75.

7. Mr. Rajan got a job at the age of 24 yr and he got retired from the job at the age of 60 yr. What fraction of his age till retirement was he in the job?

Given, Rajan's age on the joining = 24 yr

And retirement age = 60 Yr

The number of years, he did the job

$$= \text{Retirement age} - \text{Joining age} \\ = 60 - 24 = 36 \text{ Yr}$$

∴ The fraction of his age till retirement, when he was in the job

$$= \frac{\text{Total years he did the job}}{\text{Retirement age}} = \frac{36}{60}$$

[∵ HCF of 36 and 60 = 12]

$$= \frac{36 \div 12}{60 \div 12} = \frac{3}{5}$$

Hence, the required fraction is $\frac{3}{5}$.

8. Poorvi cut a cake into 8 equal pieces. If she wanted to divide each of them into 3 equal pieces, what fraction of the whole cake would each small pieces be?

Number of pieces the cake cut = 8

Number of pieces each cut piece divided into = 3

∴ Total number of pieces = 8 x 3 = 24

Hence, each piece is represented by the fraction $\frac{1}{24}$

9. Energy content of different foods are as follows:

Food	Energy content per kg (in Joules)
Wheat	3.2 J
Rice	5.3 J
Potatoes (Cooked)	3.7 J
Milk	3.0 J

Which food provides the least energy and which provides the maximum?

Also, express the least energy as a fraction of the maximum energy.

In the given table, we see that the minimum value is 3.0 J and maximum value is

5.3J

∴ Least energy provide by food = 3.0 J i.e. Milk

Food which provide the maximum energy = 5.3 J i.e. Rice

$$\therefore \text{Required fraction} = \frac{\text{Least energy}}{\text{Maximum energy}} = \frac{3.0}{5.3} = \frac{30}{53}$$

10. Roma gave a wooden board of length $150 \frac{1}{4}$ cm to a carpenter for making a shelf. The carpenter sawed off a piece of $40 \frac{1}{5}$ cm from it. What is the length of the remaining piece?

Given, length of a wooden board

$$= 150 \frac{1}{4} \text{ cm} = \frac{601}{4} \text{ cm}$$

Carpenter sawed off a piece of wooden board = $40 \frac{1}{5} \text{ cm} = \frac{201}{5} \text{ cm}$

$$\therefore \text{Length of the remaining piece} = \frac{601}{4} - \frac{201}{5}$$

∴ LCM of 4 and 5 = 20

$$\begin{aligned} \therefore \frac{601}{4} - \frac{201}{5} &= \frac{601 \times 5}{4 \times 5} - \frac{201 \times 4}{5 \times 4} \\ &= \frac{3005 - 804}{20} \\ &= \frac{3005 - 804}{20} \\ &= \frac{2201}{20} \text{ cm} \end{aligned}$$

Hence, the length of remaining piece is $\frac{2201}{20}$ cm or $110 \frac{1}{20}$ cm

11. The fish caught by Neetu was of weight $3 \frac{3}{4}$ kg and fish caught by Narendra was of weight $2 \frac{1}{2}$ kg. How much more was Neetu's fish weight than that of Narendra?

Given, weight of fish caught by Neelu

$$= 3 \frac{3}{4} \text{ kg} = \frac{15}{4} \text{ kg}$$

And weight of the fish caught by Narendra = $2 \frac{1}{2} \text{ kg} = \frac{5}{2} \text{ kg}$

∴ Difference between their weights

$$\begin{aligned} &= \frac{15}{4} - \frac{5}{2} = \frac{15}{4} - \frac{5 \times 2}{4} \text{ [LCM of 2 and 4 = 4]} \\ &= \frac{15}{4} - \frac{10}{4} = \frac{15 - 10}{4} = \frac{5}{4} \text{ kg} \end{aligned}$$

Hence, Neetu's fish weight is $\frac{5}{4}$ kg more than the Narendra's fish weight.

II. Long Answer Type Questions

1. Write the fraction representing the total of natural numbers in the collection of numbers $-3, -2, -1, 0, 1, 2, 3$. What fraction will it be for whole numbers? What fraction will it be for integers?

Given, the collection of numbers are $-3, -2, -1, 0, 1, 2, 3$.

Total integer numbers = 7

Total natural number = 3

Total whole numbers = 4

$$\begin{aligned} \text{i) Required fraction} &= \frac{\text{Total natural numbers}}{\text{Total numbers}} \\ &= \frac{3}{7} \end{aligned}$$

$$\begin{aligned} \text{ii) Required fraction} &= \frac{\text{Total whole numbers}}{\text{Total numbers}} \\ &= \frac{4}{7} \end{aligned}$$

$$\begin{aligned} \text{iii) Required fraction} &= \frac{\text{Total integer numbers}}{\text{Total numbers}} \\ &= \frac{7}{7} = 1 \end{aligned}$$

2. (i) Subtract the sum of $3\frac{5}{9}$ and $3\frac{1}{3}$ from the sum of $5\frac{5}{6}$ and $4\frac{1}{9}$.

$$\begin{aligned} \text{The sum of } 3\frac{5}{9} \text{ and } 3\frac{1}{3} &= 3\frac{5}{9} + 3\frac{1}{3} = \frac{32}{9} + \frac{10}{3} \\ &= \frac{32+30}{9} = \frac{62}{9} \end{aligned}$$

$$\begin{aligned} \text{and the sum of } 5\frac{5}{6} \text{ and } 4\frac{1}{9} &= \frac{35}{6} + \frac{37}{9} \\ &= \frac{105+74}{18} = \frac{179}{18} \end{aligned}$$

According to condition,

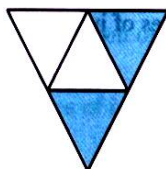
$$\begin{aligned} \frac{179}{18} - \frac{62}{9} &= \frac{179-124}{18} \\ &= \frac{55}{18} = 3\frac{1}{18} \end{aligned}$$

- (ii) What is difference between like fractions and unlike fractions

Like fractions have same denominators and unlike fractions have different denominators.

III. Long Answer Type Questions

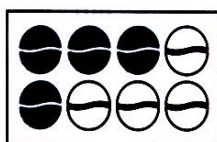
1. Write the fraction representing the shaded portion.



(i)



(ii)



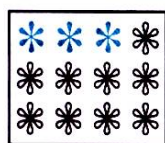
(iii)



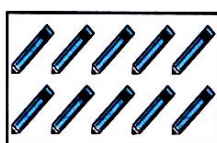
(iv)



(v)



(vi)



(vii)



(viii)

i) $\frac{2}{4}$

ii) $\frac{8}{9}$

iii) $\frac{17}{7}$

iv) $\frac{1}{4}$

v) $\frac{3}{7}$

vi) $\frac{3}{12}$

vii) $\frac{10}{10}$

viii) $\frac{4}{9}$

2. Express the following as mixed fractions:

i) $\frac{20}{3}$

$$\begin{array}{r} 6 \\ 3 \overline{)20} \\ \underline{18} \end{array}$$

$\underline{2}$ Quotient = 6 and remainder = 2

$$\therefore \frac{20}{3} = 6 + \frac{2}{3} = 6 \frac{2}{3}$$

ii) $\frac{11}{5}$

$$\begin{array}{r} 2 \\ 5 \overline{)11} \\ \underline{10} \end{array}$$

$\underline{1}$ Quotient = 2 and remainder = 1

$$\therefore \frac{11}{5} = 2 + \frac{1}{5} = 2 \frac{1}{5}$$

iii) $\frac{17}{7}$

$$\begin{array}{r} 2 \\ 7 \overline{)17} \\ \underline{14} \end{array}$$

3 Quotient = 2 and remainder = 3

$$\therefore \frac{17}{7} = 2 + \frac{3}{7} = 2 \frac{3}{7}$$

iv) $\frac{28}{5}$

$$\begin{array}{r} 5 \\ 5 \overline{)28} \\ \underline{25} \end{array}$$

3 Quotient = 5 and remainder = 3

$$\therefore \frac{28}{5} = 5 \frac{3}{5} = 5 \frac{3}{5}$$

v) $\frac{19}{6}$

$$\begin{array}{r} 3 \\ 6 \overline{)19} \\ \underline{18} \end{array}$$

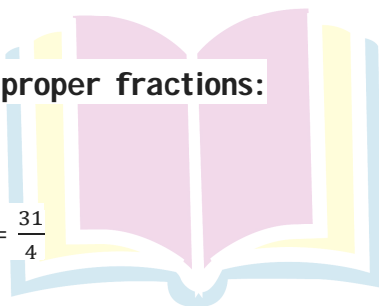
1 Quotient = 3 and remainder = 1

$$\therefore \frac{19}{6} = 3 + \frac{1}{6} = 3 \frac{1}{6}$$

3. Express the following as improper fractions:

i) $7 \frac{3}{4}$

$$7 \frac{3}{4} = \frac{(7 \times 4) + 3}{4} = \frac{28 + 3}{4} = \frac{31}{4}$$



ii) $5 \frac{6}{7}$

$$5 \frac{6}{7} = \frac{(5 \times 7) + 6}{7} = \frac{35 + 6}{7} = \frac{41}{7}$$

iii) $2 \frac{5}{6}$

$$2\frac{5}{6} = \frac{(2 \times 6) + 5}{6} = \frac{12 + 5}{6} = \frac{17}{6}$$

iv) $10\frac{3}{5}$

$$10\frac{3}{5} = \frac{(10 \times 5) + 3}{5} = \frac{50 + 3}{5} = \frac{53}{5}$$

v) $9\frac{3}{7}$

$$9\frac{3}{7} = \frac{(9 \times 7) + 3}{7} = \frac{63 + 3}{7} = \frac{66}{7}$$

4. Find the equivalent fraction of $\frac{3}{5}$ having

i) denominator 20

Hence, denominator = 20

Clearly, $20 = (5 \times 4)$

So, we multiply numerator with 4.

$$\therefore \frac{3}{5} = \frac{3 \times 4}{5 \times 4} = \frac{12}{20}$$

ii) denominator 30

Here, numerator = 9

Clearly, $9 = (3 \times 3)$

So, we multiply the denominator also by 3.

$$\therefore \frac{3}{5} = \frac{3 \times 3}{5 \times 3} = \frac{9}{15}$$

iii) numerator 9

Here, denominator = 30

Clearly, $30 = (5 \times 6)$

So, we multiply the numerator also by 6

$$\therefore \frac{3}{5} = \frac{3 \times 6}{5 \times 6} = \frac{18}{30}$$

iv) numerator 27

Here, numerator = 27

Clearly, $27 = (3 \times 9)$

So, we multiply the denominator also by 9.

$$\therefore \frac{3}{5} = \frac{3 \times 9}{5 \times 9} = \frac{27}{45}$$

5. Reduce the following fractions to simplest form:

i) $\frac{48}{60}$

Factors of 48 are 1, 2, 3, 4, 6, 8, 12, 16, 24, 48

Factors of 60 are 1, 2, 3, 4, 5, 6, 10, 12, 15, 20, 30, 60

Common factors of 48 and 60 are 1, 2, 3, 4, 6, 12

HCF of 48 and 60 = 12

$$\therefore \frac{48}{60} = \frac{48 \div 12}{60 \div 12} = \frac{4}{5}$$

ii) $\frac{150}{60}$

Factors of 150 are 1, 2, 3, 5, 6, 10, 15, 25, 30, 50, 75, 150

Factors of 60 are 1, 2, 3, 4, 5, 6, 10, 12, 15, 20, 30, 60

HCF of 150 and 60 = 30

$$\therefore \frac{150}{60} = \frac{150 \div 30}{60 \div 30} = \frac{5}{2}$$

iii) $\frac{84}{98}$

Factors of 84 are 1, 2, 3, 4, 6, 7, 12, 14, 21, 28, 42, 84

Factors of 98 are 1, 2, 7, 14, 49, 98

HCF of 84 and 98 = 14

$$\therefore \frac{84}{98} = \frac{84 \div 14}{98 \div 14} = \frac{6}{7}$$

iv) $\frac{12}{52}$

Factors of 12 are 1, 2, 3, 4, 6, 12

Factors of 52 are 1, 2, 4, 13, 26, 52

HCF of 12 and 52 = 4

$$\therefore \frac{12}{52} = \frac{12 \div 4}{52 \div 4} = \frac{3}{13}$$

v) $\frac{7}{28}$

Factors of 7 are 1, 7

Factors of 28 are 1, 2, 4, 7, 14, 28

HCF of 7 and 28 = 7

$$\therefore \frac{7}{28} = \frac{7 \div 7}{28 \div 7} = \frac{1}{4}$$

6. Find answers to the following. Write and indicate how you solve them.

i) Is $\frac{5}{9}$ equal to $\frac{4}{5}$?

No, $\frac{5}{9} \neq \frac{4}{5}$

As, the fractions are unlike, their numerators are different too. So, we write their equivalent fractions.

$$\frac{5}{9} = \frac{25}{45} \text{ and } \frac{4}{5} = \frac{36}{45}$$

Since $\frac{36}{45} > \frac{25}{45}$. So, $\frac{36}{45} \neq \frac{25}{45}$

Therefore, $\frac{4}{5} \neq \frac{5}{9}$.

ii) Is $\frac{9}{16}$ equal to $\frac{5}{9}$?

No, $\frac{9}{16} \neq \frac{5}{9}$

As, the fractions are unlike so we write their equivalent fractions.

$$\text{i.e., } \frac{9}{16} = \frac{81}{144} \text{ and } \frac{5}{9} = \frac{80}{144}$$

Here, $\frac{81}{144} > \frac{80}{144}$, So $\frac{81}{144} \neq \frac{80}{144}$

Therefore, $\frac{9}{16} \neq \frac{5}{9}$.

iii) Is $\frac{4}{5}$ equal to $\frac{16}{20}$?

Yes, $\frac{4}{5} = \frac{16}{20}$

Here, we write their equivalent fractions

$$\text{i.e., } \frac{4}{5} = \frac{8}{10}, \frac{12}{15}, \frac{16}{20} \dots$$

Therefore, $\frac{4}{5} = \frac{16}{20}$.

iv) Is $\frac{1}{15}$ equal to $\frac{4}{30}$?

No, $\frac{1}{15} \neq \frac{4}{30}$

As, the fractions are unlike so we write their equivalent fractions.

7. Solve:

i) $\frac{1}{18} + \frac{1}{18}$

$$\frac{1}{18} + \frac{1}{18} = \frac{2}{18} = \frac{1}{9}$$

ii) $\frac{8}{15} + \frac{3}{15}$

$$\frac{8}{15} + \frac{3}{15} = \frac{8+3}{15} = \frac{11}{15}$$

iii) $\frac{7}{7} - \frac{5}{7}$

$$\frac{7}{7} - \frac{5}{7} = \frac{7-5}{7} = \frac{2}{7}$$

iv) $\frac{1}{22} = \frac{21}{22}$

$$\frac{1}{22} + \frac{21}{22} = \frac{1+21}{22} = \frac{22}{22} = 1$$

v) $\frac{12}{15} - \frac{7}{15}$

$$\frac{12}{15} - \frac{7}{15} = \frac{12-7}{15} = \frac{5}{15} = \frac{1}{3}$$

vi) $\frac{5}{8} + \frac{3}{8}$

$$\frac{5}{8} + \frac{3}{8} = \frac{5+3}{8} = \frac{8}{8} = 1$$

vii) $1 - \frac{2}{3}$

$$1 - \frac{2}{3} = \frac{3}{3} - \frac{2}{3}$$

$$= \frac{3-2}{3} = \frac{1}{3}$$

viii) $\frac{1}{4} + \frac{0}{4}$

$$\frac{1}{4} + \frac{0}{4} = \frac{1+0}{4} = \frac{1}{4}$$

ix) $3 - \frac{12}{5}$

$$3 - \frac{12}{5} = \frac{3}{1} - \frac{12}{5}$$

Taking LCM of 1 and 5, we have

$$\frac{3 \times 5 - 12}{5} = \frac{15 - 12}{5} = \frac{3}{5}$$

8. Solve:

i) $\frac{2}{3} + \frac{1}{7}$

Taking LCM of 3 and 7, we have

$$\frac{2}{3} + \frac{1}{7} = \frac{2 \times 7 + 1 \times 3}{3 \times 7} = \frac{14 + 3}{21} = \frac{17}{21}$$

ii) $\frac{3}{10} + \frac{7}{15}$

Taking LCM of 10 and 15, we have

$$\frac{3}{10} + \frac{7}{15} = \frac{3 \times 3 + 7 \times 2}{30} = \frac{9 + 14}{30} = \frac{23}{30} \quad [\text{Since LCM} = 30]$$

iii) $\frac{2}{3} + \frac{3}{4} + \frac{1}{2}$

Taking LCM of 3, 4 and 2, we have

$$\frac{2}{3} + \frac{3}{4} + \frac{1}{2} = \frac{2 \times 4}{3 \times 4} + \frac{3 \times 3}{4 \times 3} + \frac{1 \times 6}{2 \times 6} \quad [\text{Since LCM} = 12]$$

$$= \frac{8}{12} + \frac{9}{12} + \frac{6}{12} = \frac{8+9+6}{12} = \frac{23}{12}$$

iv) $1 \frac{1}{3} + 3 \frac{2}{3}$

We can write this as,

$$1 + \frac{1}{3} + 3 + \frac{2}{3} = 4 + \frac{1}{3} + \frac{2}{3}$$

Now taking $\frac{1}{3} + \frac{2}{3} = \frac{1+2}{3} = \frac{3}{3} = 1$

Thus, $4 + \frac{1}{3} + \frac{2}{3} = 4 + 1 = 5$

v) $\frac{16}{5} - \frac{7}{5}$

$$\frac{16}{5} - \frac{7}{5} = \frac{16-7}{5} = \frac{9}{5}$$

I.HOTS (Higher Order Thinking Skills)

1. Katrina rode her bicycle $6 \frac{1}{2}$ km in the morning and $8 \frac{3}{4}$ km in the evening. Find the distance travelled by her altogether on that day.

Katrina rode her bicycle in the morning

$$= 6 \frac{1}{2}$$

$$= \frac{13}{2}$$

Katrina rode her bicycle in the evening

$$= 8 \frac{3}{4}$$

$$= \frac{35}{4}$$

Hence, distance travelled by her although on that day

$$= \frac{13}{2} + \frac{35}{4}$$

$$= \frac{13 \times 2}{2 \times 2} + \frac{35}{4}$$

$$= \frac{26}{4} + \frac{35}{4}$$

$$= \frac{26+35}{4} = \frac{61}{4}$$

$$= 15 \frac{1}{4}$$

2. The food we eat remains in the stomach for a maximum of 4 hours. For what fraction of a day, does it remain there?

We know that,

$$1 \text{ day} = 24 \text{ hour}$$

Given, the food we eat remains in the stomach for a maximum hours = 4

∴ Fraction of a day, does food remain there

$$= \frac{\text{Total no. of hour food remain in the stomach}}{\text{Total no. of hours in 1 day}}$$

$$= \frac{4}{24}$$

$$= \frac{1}{6}$$

II.HOTS (Higher Order Thinking Skills)

1. Write the fraction representing the total number of natural numbers in the collection 0, 1, 2, 3, -4, -5, 6. What fraction will it be for whole numbers and integers?

Total collection of numbers = 7

Total number of natural numbers = 3

∴ The fraction representing the total number of natural numbers in the given collection of numbers is $\frac{3}{7}$

The number of whole numbers = 4

∴ The fraction is $\frac{4}{7}$.

Total number of integers = 7

∴ The fraction is $\frac{7}{7}$

2. What is wrong in the following additions?

$$\text{i) } 8 \frac{1}{2} = 8 \frac{2}{4}$$

$$+ 4 \frac{1}{4} = 4 \frac{1}{4}$$

$$= 12 \frac{3}{8} \quad \leftarrow \text{Wrong}$$

$$\text{ii) } 6 \frac{1}{2}$$

$$+ 2 \frac{1}{4}$$

$$= 8 \frac{2}{6}$$

i) Equal denominators too have been added.

ii) Numerators and denominators have been added.

3. Write a pair of fractions whose sum is $\frac{7}{11}$ and difference is $\frac{2}{11}$.

Let the fraction be x

So, the other fraction is $\frac{7}{11} - x$

According to question,

$$x \left(- \frac{7}{11} - x \right) = \frac{2}{11} \Rightarrow x - \frac{7}{11} + x = \frac{2}{11}$$

$$\Rightarrow 2x = \frac{2}{11} + \frac{7}{11}$$

$$\Rightarrow 2x = \frac{9}{11} \Rightarrow x = \frac{9}{22}$$

One of the fractions is $\frac{9}{22}$.

And the other fraction is $\frac{7}{11} - \frac{9}{22} = \frac{14-9}{22} = \frac{5}{22}$

4. Complete the addition-subtraction box.

(i)

	+		
	$\frac{2}{3}$	$\frac{4}{3}$	
	$\frac{1}{3}$	$\frac{2}{3}$	

(ii)

	+		
	$\frac{1}{2}$	$\frac{1}{3}$	
	$\frac{1}{3}$	$\frac{1}{4}$	

(i)

	+		
	$\frac{2}{3}$	$\frac{4}{3}$	x
-	$\frac{1}{3}$	$\frac{2}{3}$	y
	a	b	z

$$x = \frac{2}{3} + \frac{4}{3} = \frac{6}{3} = 2$$

$$y = \frac{1}{3} + \frac{2}{3} = \frac{3}{3} = 1$$

$$z = 2 - 1 = 1$$

$$a = \frac{2}{3} - \frac{1}{3} = \frac{1}{3}$$

$$b = \frac{4}{3} - \frac{2}{3} = \frac{2}{3}$$

So,

$\frac{2}{3}$	$\frac{4}{3}$	2
$\frac{1}{3}$	$\frac{2}{3}$	1
$\frac{1}{3}$	$\frac{2}{3}$	1

(ii)

	+		
	$\frac{1}{2}$	$\frac{1}{3}$	x
-	$\frac{1}{3}$	$\frac{1}{4}$	y
	a	b	z

$$x = \frac{1}{2} + \frac{1}{3} = \frac{3+2}{6} = \frac{5}{6}$$

$$y = \frac{1}{3} + \frac{1}{4} = \frac{4+3}{12} = \frac{7}{12}$$

$$z = \frac{5}{6} - \frac{7}{12} = \frac{10-7}{12} = \frac{3}{12} = \frac{1}{4}$$

$$a = \frac{1}{2} - \frac{1}{3} = \frac{3-2}{6} = \frac{1}{6} \text{ and } b = \frac{1}{3} - \frac{1}{4} = \frac{4-3}{12} = \frac{1}{12}$$

So,

$\frac{1}{2}$	$\frac{1}{3}$	$\frac{5}{6}$
$\frac{1}{3}$	$\frac{1}{4}$	$\frac{7}{12}$
$\frac{1}{6}$	$\frac{1}{12}$	$\frac{3}{12}$



Next Generation School