

# APPENDIX

**Achievement test**  
(For diagnostic purpose)

**Class V**  
**Subject: Mathematics**  
**Topic: Fraction**

**Students Information:**

**M M: 50**

**Name:** \_\_\_\_\_

**Gender:** \_\_\_\_\_

**Age:** \_\_\_\_\_

**School:** \_\_\_\_\_

**Father's occupation:** \_\_\_\_\_

**Mother's occupation:** \_\_\_\_\_

**Date:** \_\_\_\_\_

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**Instructions**

- 1) As such there is no time limit for solving the questions but still try to solve within 1 hour.
  - 2) Write the answers in the appropriate space provided in the question paper.
  - 3) Before writing the answer, read the question carefully.
  - 4) This test will not effect your final results in any manner.
-

Q 1 Divide the following:

a)  $43 \div 5$

b)  $63 \div 7$

c)  $36 \div 4$

d)  $80 \div 9$

Q 2 Write the numerator (N) and denominator (D) in each of the following fractions:

a)  $\frac{1}{10}$                       N = .....                      D = .....

b)  $\frac{6}{15}$                         N = .....                        D = .....

c)  $\frac{2}{9}$                             N = .....                            D = .....

d)  $\frac{3}{8}$                             N = .....                            D = .....

Q3 Write down the fraction in which:

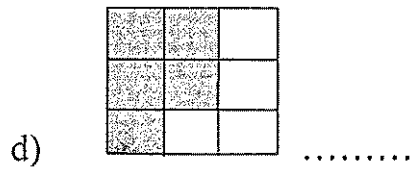
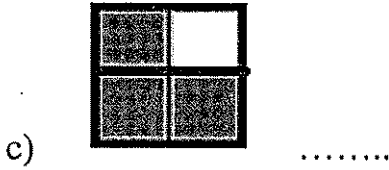
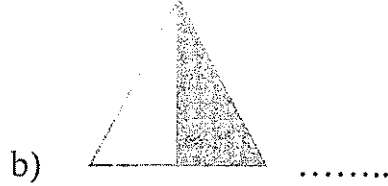
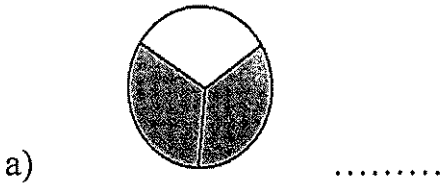
a) Numerator =3, denominator =7 .....

b) Numerator =5, denominator =9 .....

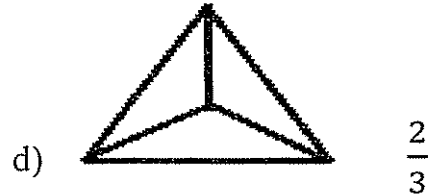
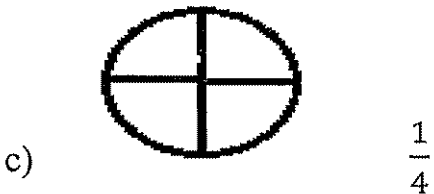
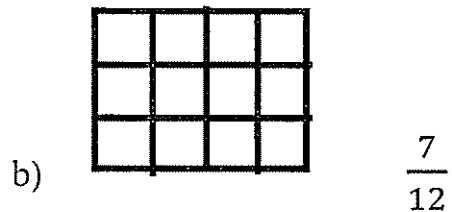
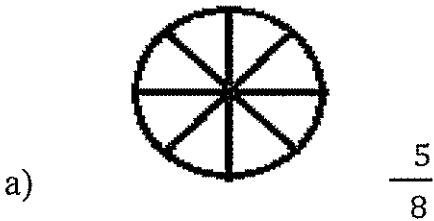
c) Numerator =6, denominator =13 .....

d) Numerator =4, denominator =5 .....

Q4 Write down the fraction of the shaded part of the following:



Q5 Shade the part of the following figures according to the given fraction:



Q 6 Write three equivalent fractions for the following:

a)  $\frac{2}{5}$

.....

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

.....

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

.....

d)  $\frac{5}{8}$

.....

Q 7 Arrange the following fractions in ascending order:

a)  $\frac{7}{11}, \frac{10}{11}, \frac{1}{11}$  .....

b)  $\frac{2}{10}, \frac{9}{10}, \frac{3}{10}$  .....

Q 8 Arrange the following fractions in descending order:

a)  $\frac{2}{13}, \frac{5}{13}, \frac{3}{13}$  .....

b)  $\frac{4}{9}, \frac{7}{9}, \frac{5}{9}$  .....

Q 9 Compare the fractions. Write < or > in each box:

a)  $\frac{7}{11} \square \frac{10}{11}$

b)  $\frac{22}{110} \square \frac{20}{110}$

c)  $\frac{21}{17} \square \frac{12}{17}$

d)  $\frac{9}{11} \square \frac{13}{11}$

Q 10 From the following, identify the proper, improper or mixed fractions:

For example:

- In proper fraction- numerator is less than denominator ( $\frac{3}{7}$ ).
- In improper fraction numerator is greater than denominator ( $\frac{9}{5}$ ).
- In mixed fraction-There is whole number and a proper fraction together ( $5\frac{2}{3}$ ).

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

b)  $\frac{7}{11}$  .....

c)  $\frac{13}{11}$  .....

d)  $7\frac{3}{5}$  .....

e)  $\frac{5}{8}$  .....

f)  $\frac{20}{21}$  .....

Q 11 Fill in the blanks to make the fractions equal:

a)  $\frac{1}{3} = \frac{\square}{24}$

b)  $\frac{3}{5} = \frac{\square}{50}$

c)  $\frac{2}{9} = \frac{\square}{45}$

d)  $\frac{3}{4} = \frac{9}{\square}$

Q 12 Convert the following improper fractions in to mixed fractions:

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

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

Q 13 Convert the following mixed fractions in to improper fractions:

a)  $3\frac{1}{2}$  .....

b)  $5\frac{2}{7}$  .....

Q 14 Add:

a)  $\frac{1}{6} + \frac{4}{6}$

b)  $\frac{2}{13} + \frac{5}{13} + \frac{7}{13}$

Q 15 Subtract:

a)  $\frac{3}{10}$  from  $\frac{7}{10}$

b)  $\frac{9}{11}$  from  $\frac{14}{11}$



# INTERVENTION THROUGH PROCESS

## APPROACH

(Remedial Measures)

**Fraction**  $\longrightarrow$  Fraction means that unity (one) is dividing into any number of each part, then one or more of these parts are called a fraction. Thus if we divide unity into seven equal parts (of  $\frac{1}{7}$  each) and take four of these parts, we have a fraction equal to four sevenths  $\frac{4}{7}$

**For Example:** Neha has 24 bangles to wear on the occasion of her brother's marriage but on that day her nearest cousin Sonia forgot to bring her jewellery box. She asked for bangles from Neha. Neha gave her twelve bangles and wore remaining bangles: thus, both Neha and her cousin had 12 bangles.

This shows that Neha gave half of her bangles to Sonia.

**In other example:** Sachin and Dhoni went to a Pizza hut for enjoying pizza. They ordered a regular pizza which was circular in shape cut into 8 equal slice. Sachin was aware of the concept of fractions and started explaining it to Dhoni. He said each cut portion of that pizza is one-eighth of the whole pizza because whole pizza is divided to eight equal parts.

Three parts of that pizza makes  $\frac{3}{8}$  and five parts makes  $\frac{5}{8}$ . Since we both are eating 4 parts that means we are actually taking  $\frac{4}{8}$  which is half.

Dhoni replied that today I have learnt that a fraction is number representing part of a whole.

**A fraction:** A fraction means a part of a group or a region.  
 $\frac{8}{15}$  is a fraction and we read it as “eight-fifteenth”.

In this fraction 8 stands for numerator, whereas 15 stands for denominator.

$$\text{Fraction} = \frac{\text{numerator}}{\text{denominator}}$$

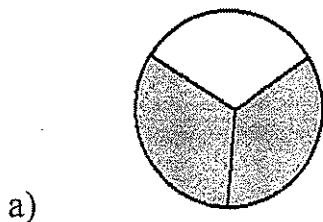
**Numerator:** Upper written numerical value of fraction.

**Denominator:** Lower written numerical value of fraction.

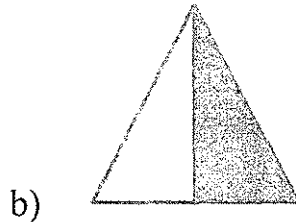
For example:  $\frac{4}{7}$

Here numerator = 4 and denominator = 7

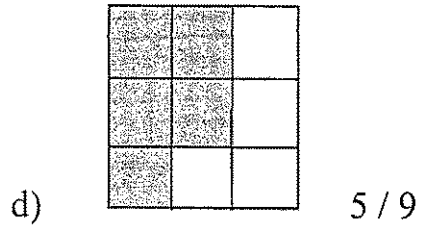
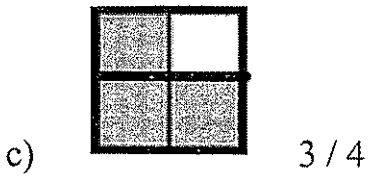
Some examples of fraction representing the shaded portion



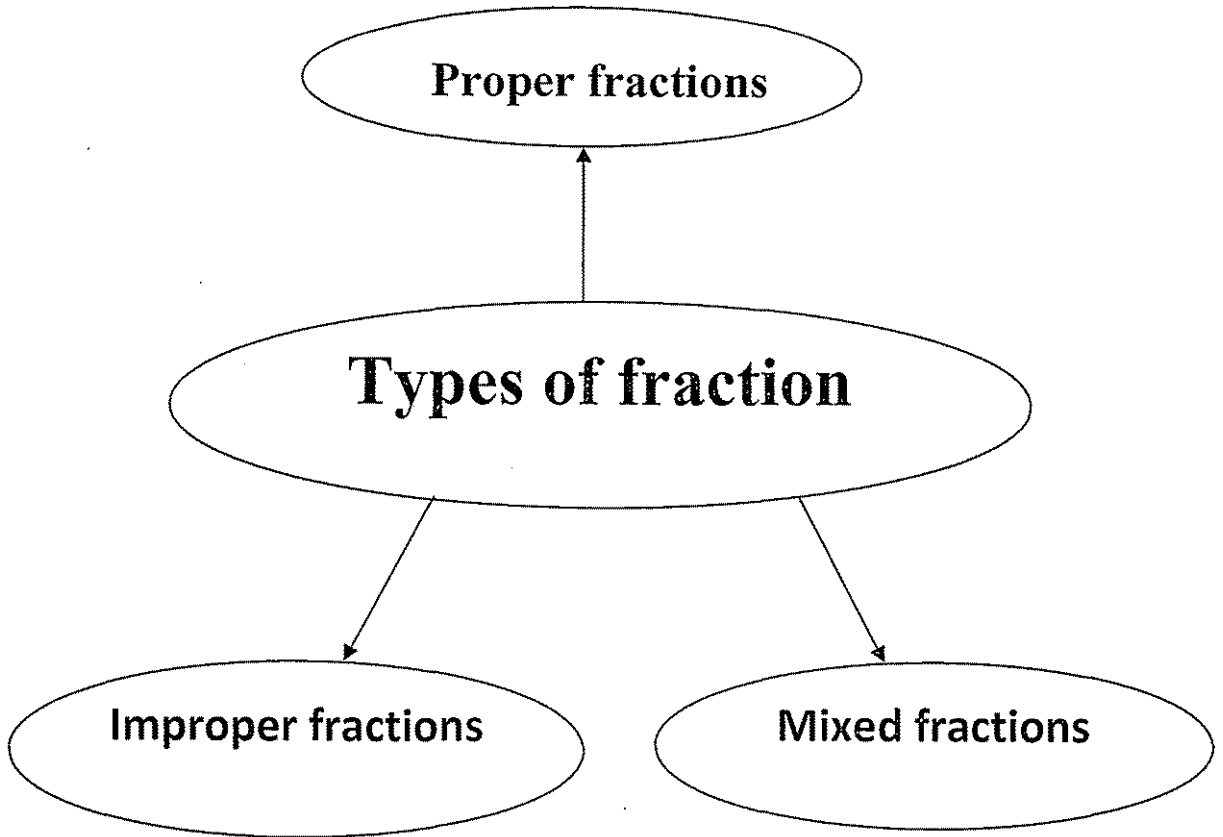
$\frac{2}{3}$



$\frac{1}{2}$



## Types of fractions:



**Proper Fractions:** Ravi has 6 pencils, he gave 2 to his sister, then fraction of pencils she received was  $2/6$  i.e.,  $1/3$

Meena gave half of her chapatti to Reena i.e.,  $1/2$  of chapatti was with Reena.

From the above we observe , **numerator is always less than its denominator and are known as proper fraction.**

**Note :** If in a fraction numerator is less than its denominator, that fraction is always less than 1.

Proper fractions are always less than 1

**Improper Fractions:** Joy, John, Paul and Nancy went to a party. After dinner, gulab jamuns were served, they took a plate of 9 gulab jamuns and were confused as how to distribute 9 gulab jamuns among four of them.

But Joy was really capable of distributing 9 gulab jamuns equally among four of them. He distributed to each of them and said, let us divide remaining one gulab jamuns equally. He divided it into four equal parts and gave one part to each. They all were very happy to see exact distribution of those gulab jamuns. Each one of them had got 2 full gulab jamuns and a quarter of the ninth gulab jamuns. This is how 9 gulab jamuns were divided into 4 children.

But observe in this fraction, here **numerator is bigger than its denominator and is called improper fraction.**

**Mixed Fractions:** In previous example, Joy distributed 9 gulab jamuns, among 4 children. Each one had got

$$1 + 1 + \frac{1}{4} = 2 + \frac{1}{4} = 2 \frac{1}{4} \text{ is same as } \frac{9}{4}$$

Fractions in the form,  $2 \frac{1}{4}$ ,  $3 \frac{2}{3}$ ,  $1 \frac{1}{4}$  are called mixed fractions.

**Mixed fraction is a combination of a whole and a part.**

**Note:** All improper fractions in the form of mixed fraction because here numerator is bigger than its denominator.

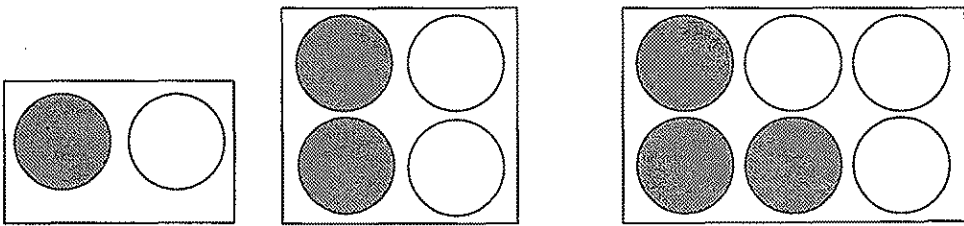
Improper fractions are greater than 1

In general, improper fraction can be expressed in mixed fraction and a mixed fraction will be

$$\text{Quotient} + \frac{\text{Remainder}}{\text{Divisor}} = \text{Quotient} \frac{\text{Remainder}}{\text{Divisor}}$$

Similarly, we can express all mixed fractions in the form of improper fraction.

**Equivalent Fractions:** Observe the following representations of fractions



These fractions are  $\frac{1}{2}, \frac{2}{4}, \frac{3}{6}$  but each represents half of the total. They all are equal and are called **equivalent fractions**.

**Note:** To find equivalent fraction of a given fraction multiply or divide its numerator and denominator by the same number.

For example: Find the equivalent fraction of  $\frac{1}{2}$ .

$$\frac{1}{2} \times \frac{2}{2} = \frac{2}{4}, \quad \frac{1}{2} \times \frac{3}{3} = \frac{3}{6}, \quad \frac{1}{2} \times \frac{4}{4} = \frac{4}{8}$$

### Comparing fractions:

If numerator of the fractions is different and denominator is same then comparison is made on the bases of numerator value.

**Note:** If numerators of the fractions are same, then compare their denominators. Smaller is the denominator, and then greater is that fraction.

**For example:** a) Arrange the given fraction in ascending order

$$\frac{7}{11}, \frac{10}{11}, \frac{1}{11} \quad \Rightarrow \quad \frac{1}{11}, \frac{7}{11}, \frac{10}{11}$$

b) Arrange the given in descending order

$$\frac{2}{13}, \frac{5}{13}, \frac{3}{13} \quad \Rightarrow \quad \frac{5}{13}, \frac{3}{13}, \frac{2}{13}$$

### Addition and subtraction of fractions:

To add two or more like fractions

- If denominator of two fractions is same, add their numerators with same denominator to get the resultant fraction.

$$\text{Sum of like fraction} = \frac{\text{sum of numerator}}{\text{common denominator}}$$

**For example:**  $\frac{1}{6} + \frac{4}{6} = \frac{1+4}{6} = \frac{5}{6}$

To subtract two or more like fractions

- If denominator of two fractions is same, subtract their numerators with same denominator to get the resultant fraction.

Difference of like fraction =  $\frac{\text{difference of numerator}}{\text{common denominator}}$

For example:  $\frac{3}{10}$  from  $\frac{7}{10} = \frac{7}{10} - \frac{3}{10} = \frac{7-3}{10} = \frac{4}{10}$

**Conversion of mixed fraction into improper fractions:**

$$\text{Mixed fraction} = \frac{\text{whole number} \times \text{denominator} + \text{numerator}}{\text{denominator}}$$

For example:  $3\frac{1}{2} = \frac{3 \times 2 + 1}{2} = \frac{7}{2}$

**Conversion of improper fraction into mixed fraction:**

$$\text{Improper fraction} = \text{quotient} \times \frac{\text{remainder}}{\text{divisor}}$$

For example:  $\frac{19}{4} = 3\frac{4}{5}$

# ITEMWISE INTERPRETATION OF QUESTIONS

(Teachers guide)

1) For solving the questions of division child should know the concept of multiplication, subtraction and tables

For example:  $43 \div 5$

2 & 3) **Numerator**: Upper written numerical value of fraction.

**Denominator**: Lower written numerical value of fraction.

For example:  $\frac{4}{7}$

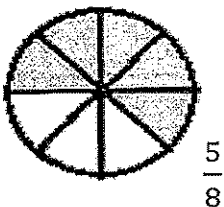
Here numerator = 4 and denominator = 7

4) In this question child has to write the fraction of the shaded part.

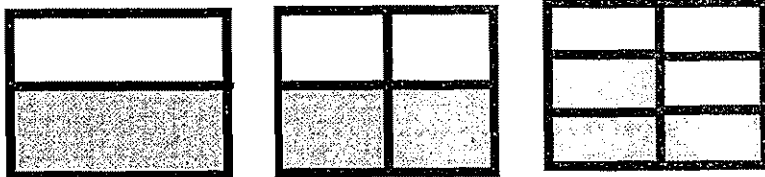
For example:  $\frac{2}{3}$

5) In this question child has to shape the mention fraction and the number written in numerator part has to be shaded only.

For example:



6 & 11) **Equivalent fraction**:





From the above it is clear that the shaded portion represent the same part of a whole such as  $\frac{1}{2}, \frac{2}{4}, \frac{3}{6}$  are equivalent fractions.

For solving these questions child should know concept of equivalent fractions.

For example: Find the equivalent fraction of  $\frac{1}{2}$

$$\frac{1}{2} \times \frac{2}{2} = \frac{2}{4}, \quad \frac{1}{2} \times \frac{3}{3} = \frac{3}{6}$$

**7, 8 & 9)** In making arrangement of fractions in ascending and descending order if denominators are same as in given questions we have to make comparison on the bases of numerator value.

For example : a) Arrange the given fraction in ascending order

$$\frac{7}{11}, \frac{10}{11}, \frac{1}{11} \quad \Rightarrow \quad \frac{1}{11}, \frac{7}{11}, \frac{10}{11}$$

b) Arrange the given in descending order

$$\frac{2}{13}, \frac{5}{13}, \frac{3}{13} \quad \Rightarrow \quad \frac{5}{13}, \frac{3}{13}, \frac{2}{13}$$

**10) Proper fractions:** A fraction whose numerator is less than its denominator

For example:  $\frac{3}{13}$

**Improper fraction:** Numerator is greater than its denominator.

For example:  $\frac{7}{3}$

**Mixed fraction:** Mixed fraction is a fraction which has a whole number and a proper fraction together.

For example:  $5\frac{2}{7}$

## 12) Conversion of mixed fraction into improper fractions:

$$\text{Mixed fraction} = \frac{\text{whole number} \times \text{denominator} + \text{numerator}}{\text{denominator}}$$

$$\text{For example: } 3\frac{1}{2} = \frac{3 \times 2 + 1}{2} = \frac{7}{2}$$

## 13) Conversion of improper fraction into mixed fraction:

$$\text{Improper fraction} = \text{quotient} \times \frac{\text{remainder}}{\text{divisor}}$$

$$\text{For example: } \frac{19}{4} = 3\frac{4}{5}$$

## 14) Addition of like fraction:

$$\text{Sum of like fraction} = \frac{\text{sum of numerator}}{\text{common denominator}}$$

$$\text{For example: } \frac{1}{6} + \frac{4}{6} = \frac{1+4}{6} = \frac{5}{6}$$

## 15) Subtraction of like fraction:

$$\text{Difference of like fraction} = \frac{\text{difference of numerator}}{\text{common denominator}}$$

$$\text{For example: } \frac{3}{10} \text{ from } \frac{7}{10} = \frac{7}{10} - \frac{3}{10} = \frac{7-3}{10} = \frac{4}{10}$$

## ANSWER SHEET

1)

a) Quotient = 8, Remainder = 3

b) Quotient = 9, Remainder = 0

c) Quotient = 9, Remainder = 0

d) Quotient = 8, Remainder = 8

2)

a) Numerator = 1, Denominator = 10

b) Numerator = 6, Denominator = 15

a) Numerator = 2, Denominator = 9

a) Numerator = 3, Denominator = 8

3)

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

b)  $\frac{5}{9}$

c)  $\frac{6}{13}$

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

4)

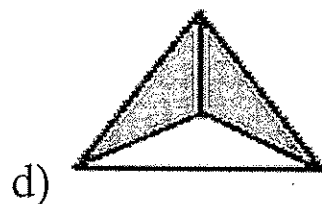
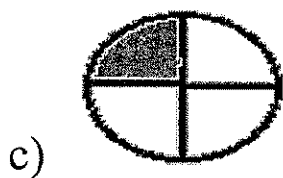
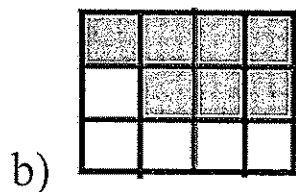
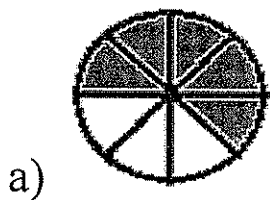
a)  $\frac{2}{3}$

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

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

d)  $\frac{5}{9}$

5)



6)

a)  $\frac{4}{10}, \frac{6}{15}, \frac{8}{20}$

b)  $\frac{6}{8}, \frac{9}{12}, \frac{12}{16}$

c)  $\frac{8}{14}, \frac{12}{21}, \frac{16}{28}$

d)  $\frac{10}{16}, \frac{15}{24}, \frac{20}{32}$

7)

a)  $\frac{1}{11}, \frac{7}{11}, \frac{10}{11}$

b)  $\frac{2}{10}, \frac{3}{10}, \frac{9}{10}$

8)

a)  $\frac{5}{13}, \frac{3}{13}, \frac{2}{13}$

b)  $\frac{7}{9}, \frac{5}{9}, \frac{4}{9}$

9)

a)  $<$

b)  $>$

c)  $>$

d)  $<$

10)

a) Mixed fraction

b) Proper fraction

c) Improper fraction

d) Mixed fraction

e) Proper fraction

f) Proper fraction

11)

a) 8

b) 30

c) 10

d) 12

12)

a)  $3\frac{3}{4}$

b)  $4\frac{1}{6}$

13)

a)  $\frac{7}{2}$

b)  $\frac{37}{7}$

5- 329

14)

a)  $\frac{1}{6} + \frac{4}{6} = \frac{1+4}{6} = \frac{5}{6}$

b)  $\frac{2}{13} + \frac{5}{13} + \frac{7}{13} = \frac{2+5+7}{13} = \frac{14}{13}$

15)

a)  $\frac{7}{10} - \frac{3}{10} = \frac{7-3}{10} = \frac{4}{10}$

b)  $\frac{14}{11} - \frac{9}{11} = \frac{14-9}{11} = \frac{5}{11}$

