ST. ANDREWS SCOTS SCHOOL

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Session: 2025-2026

Class: IV **Subject: Mathematics** **Topic: Unit -5 (Fractions)**

Warm up=

Ex-1 Q.1,Q.2 (a,c)(Book)

Q.3(a,c,f)(Notebook)

Q.4(a,c)(Notebook)

Q.5(a,c)(Notebook)

Ex -2 Q.1(Book)

Q.2(b,d,e)(Notebook)

Ex -3 Q.1,Q.2(Book)

Q.3(b,c,e)(Notebook)

Q.4(b,d,e,g,h,j)(Notebook)

Ex-4 Q.1(Book)

Q.2(b,c)(Notebook)

Q.3(b,c)(Notebook)

Ex-5 Q.1(Book)

Q.2(a,c,e)(Notebook)

Q.3(a,c)(Notebook)

Ex-6 Q.1(Book)

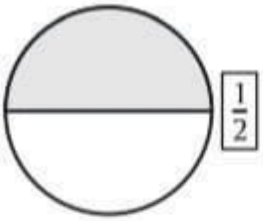
Q.2(b,d)(Notebook)

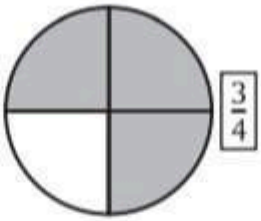
Q.3(b,d)(Book)

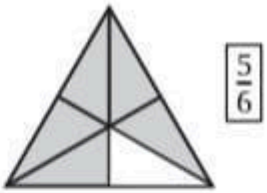
Q.4(b,d)(Notebook)

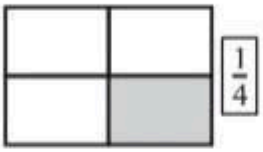
Lesson-5 : Fractions

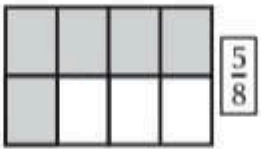
Warm Up

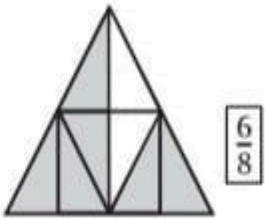
1. 

2. 

3. 

4. 

5. 

6. 

Exercise-1

1. (a) (iv) To make the numerator of $\frac{3}{7}$ as 15, we have to multiply its numerator and denominator by 5.

$\frac{3}{7} = \frac{3\times5}{7\times5} = \frac{15}{35}$

So, the equivalent fraction of $\frac{3}{7}$ with numerator 15 is $\frac{15}{35}$.

(b) (iii) To make the denominator of $\frac{4}{9}$ as 36, we have to multiply its numerator and denominator by 4.

$\frac{4}{9} = \frac{4\times4}{9\times4} = \frac{16}{36}$

So, the equivalent fraction of $\frac{4}{9}$ with denominator 36 is $\frac{16}{36}$.

2. (a) $\frac{3}{10} = \frac{3\times2}{10\times2} = \frac{6}{\boxed{20}}$ **(b)** $\frac{36}{40} = \frac{36\div4}{40\div4} = \frac{9}{\boxed{10}}$

(c) $\frac{25}{30} = \frac{25\div\boxed{5}}{30\div\boxed{5}} = \frac{5}{\boxed{6}}$ **(d)** $\frac{6}{7} = \frac{6\times\boxed{7}}{7\times\boxed{7}} = \frac{\boxed{42}}{49}$

3. (a) $\frac{3}{5} = \frac{3\times2}{5\times2} = \frac{6}{10}$; $\frac{3}{5} = \frac{3\times3}{5\times3} = \frac{9}{15}$, $\frac{3}{5} = \frac{3\times4}{5\times4} = \frac{12}{20}$, $\frac{3}{5} = \frac{3\times5}{5\times5} = \frac{15}{25}$

So, the first four fractions equivalent to $\frac{3}{5}$ are $\frac{6}{10}$, $\frac{9}{15}$, $\frac{12}{20}$, $\frac{15}{25}$.

(f) $\frac{1}{9}=\frac{1\times2}{9\times2}=\frac{2}{18}$, $\frac{1}{9}=\frac{1\times3}{9\times3}=\frac{3}{27}$, $\frac{1}{9}=\frac{1\times4}{9\times4}=\frac{4}{36}$, $\frac{1}{9}=\frac{1\times5}{9\times5}=\frac{5}{45}$

So, the first four fractions equivalent to $\frac{1}{9}$ are $\frac{2}{18}$, $\frac{3}{27}$, $\frac{4}{36}$, $\frac{5}{45}$.

4. (a) $\frac{21}{49}=\frac{3\times7}{7\times7}$, $\frac{9}{21}=\frac{3\times3}{7\times3}$

$\frac{21}{49}$, $\frac{9}{21}$ and $\frac{3}{7}$ are equivalent.

So, $\frac{12}{21}$ is not equivalent to others.

(b) $\frac{15}{27}=\frac{5\times3}{9\times3}$, $\frac{10}{18}=\frac{5\times2}{9\times2}$

$\frac{15}{27}$, $\frac{5}{9}$ and $\frac{10}{18}$ are equivalent.

So, $\frac{45}{72}$ is not equivalent to others.

(c) $\frac{9}{12}=\frac{3\times3}{4\times3}$, $\frac{15}{20}=\frac{3\times5}{4\times5}$

$\frac{3}{4}$, $\frac{9}{12}$ and $\frac{15}{20}$ are equivalent.

So, $\frac{18}{20}$ is not equivalent to others.

5. **(a)** Multiply the numerator of the 1st fraction with the denominator of the 2nd fraction and the denominator of the 1st fraction with the numerator of the 2nd fraction.

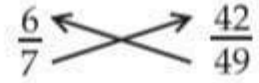
$3 \times 24 = 72,\ 8 \times 16 = 128$

So, $\frac{3}{8}$ and $\frac{16}{24}$ are not equivalent fractions.

(b) 

$2 \times 25 = 50,\ 5 \times 10 = 50$

So, $\frac{2}{5}$ and $\frac{10}{25}$ are equivalent fractions.

(c) 

$6 \times 49 = 294,\ 7 \times 42 = 294$

So, $\frac{6}{7}$ and $\frac{42}{49}$ are equivalent fractions.

Exercise-2

1. (a) (iv) One year = 12 months

$8 \text{ months} = \frac{8}{12}$ of one year

Now, $\frac{8}{12} = \frac{8 \div 4}{12 \div 4} = \frac{2}{3}$

So, $8 \text{ months} = \frac{2}{3}$ of one year.

(b) (ii) ₹2 $= \frac{2}{10}$ of ₹10

Now, $\frac{2}{10} = \frac{2 \div 2}{10 \div 2} = \frac{1}{5}$

So, ₹2 $= \frac{1}{5}$ of ₹10.

2. (a) We first find the HCF of 48 and 64.

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

Factors of 64 are (1), (2), (4), (8), (16), 32, 64.

Common factors of 48 and 64 are 1, 2, 4, 8, 16.

∴ HCF of 48 and 64 = 16

$\frac{48}{64} = \frac{48 \div 16}{64 \div 16} = \frac{3}{4}$

Thus, $\frac{48}{64}$ in the lowest terms is $\frac{3}{4}$.

(b) $\frac{49}{63} = \frac{49 \div 7}{63 \div 7} = \frac{7}{9}$ (HCF of 49 and 63 = 7)

(c) $\frac{36}{81} = \frac{36 \div 9}{81 \div 9} = \frac{4}{9}$ (HCF of 36 and 81 = 9)

(d) $\frac{22}{121} = \frac{22 \div 11}{121 \div 11} = \frac{2}{11}$ (HCF of 22 and 121 = 11)

(e) $\frac{85}{100} = \frac{85 \div 5}{100 \div 5} = \frac{17}{20}$ (HCF of 85 and 100 = 5)

(f) $\frac{75}{80} = \frac{75 \div 5}{80 \div 5} = \frac{15}{16}$ (HCF of 75 and 80 = 5)

Exercise-3

1.

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

2. **(a)** Numerator < Denominator, so, it is a proper fraction.

(b) Numerator < Denominator, so, it is a proper fraction.

(c) Numerator < Denominator, so, it is a proper fraction.

(d) Numerator < Denominator, so, it is a proper fraction.

(e) Numerator > Denominator, so, it is an improper fraction.

3. **(a)** $\frac{8}{3} = 2\frac{2}{3}$

$$\begin{array}{r} 2 \\ 3\overline{)\,8} \\ -\,6 \\ \hline 2 \end{array}$$

(b) $\frac{18}{4} = \frac{18 \div 2}{4 \div 2} = \frac{9}{2} = 4\frac{1}{2}$

$$\begin{array}{r} 4 \\ 2\overline{)\,9} \\ -\,8 \\ \hline 1 \end{array}$$

(c) $\frac{35}{6} = 5\frac{5}{6}$

$$\begin{array}{r} 5 \\ 6\overline{)\,35} \\ -\,30 \\ \hline 5 \end{array}$$

(d) $\frac{54}{5} = 10\frac{4}{5}$

$$\begin{array}{r} 10 \\ 5\overline{)\,54} \\ -\,5 \\ \hline 04 \\ -\,0 \\ \hline 4 \end{array}$$

(e) $\frac{92}{11} = 8\frac{4}{11}$

$$\begin{array}{r} 8 \\ 11\overline{)\,92} \\ -\,88 \\ \hline 4 \end{array}$$

4. **(a)** $1\frac{2}{3} = \frac{3\times1+2}{3} = \frac{3+2}{3} = \frac{5}{3}$

(b) $3\frac{3}{5} = \frac{5\times3+3}{5} = \frac{15+3}{5} = \frac{18}{5}$

(c) $2\frac{2}{7} = \frac{7\times2+2}{7} = \frac{14+2}{7} = \frac{16}{7}$

(d) $4\frac{1}{2} = \frac{2\times4+1}{2} = \frac{8+1}{2} = \frac{9}{2}$

(e) $2\frac{1}{9} = \frac{9\times2+1}{9} = \frac{18+1}{9} = \frac{19}{9}$

(f) $8\frac{3}{4} = \frac{4\times8+3}{4} = \frac{32+3}{4} = \frac{35}{4}$

(g) $7\frac{2}{5} = \frac{5\times7+2}{5} = \frac{35+2}{5} = \frac{37}{5}$

(h) $9\frac{3}{7} = \frac{7\times9+3}{7} = \frac{63+3}{7} = \frac{66}{7}$

(i) $5\frac{7}{9} = \frac{9\times5+7}{9} = \frac{45+7}{9} = \frac{52}{9}$

(j) $6\frac{5}{8} = \frac{8\times6+5}{8} = \frac{48+5}{8} = \frac{53}{8}$

Exercise-4

1. (a) The fraction with the smaller numerator is smaller for like fractions. $\frac{3}{7} \boxed{<} \frac{5}{7}$

(b) The fraction with the greater numerator is greater for like fractions. $\frac{11}{12} \boxed{>} \frac{10}{12}$

(c) $\frac{4}{5} \boxed{=} \frac{4}{5}$

(d) The fraction with the smaller denominator is greater for unlike fractions with same numerator. $\frac{3}{7} \boxed{<} \frac{3}{5}$

(e) The fraction with the smaller denominator is greater for unlike fractions with same numerator. $\frac{16}{5} \boxed{<} \frac{16}{3}$

(f) The fraction with the greater denominator is smaller for unit fractions. $\frac{1}{12} \boxed{<} \frac{1}{6}$

(g) $\frac{2}{3} \times \frac{4}{5}$

$2 \times 5 = 10, \qquad 3 \times 4 = 12$

Since $10 < 12$, therefore, $\frac{2}{3} \boxed{<} \frac{4}{5}$.

(h) $\frac{5}{9} \times \frac{20}{23}$

$5 \times 23 = 115, \qquad 9 \times 20 = 180$

Since $115 < 180$, therefore, $\frac{5}{9} \boxed{<} \frac{20}{23}$.

2. (a) The fraction with the greater numerator is greater for like fractions.

So, the given fractions in ascending order are as follows :

$\frac{1}{7}, \frac{2}{7}, \frac{3}{7}, \frac{4}{7}, \frac{6}{7}$

(b) The fraction with the smaller denominator is greater for unlike fractions with same numerator.

So, the given fractions in ascending order are as follows :

$\frac{5}{12}, \frac{5}{9}, \frac{5}{7}, \frac{5}{6}, \frac{5}{3}$

(c) $\frac{1}{3}, \frac{5}{6}, \frac{7}{12}, \frac{3}{4}, \frac{1}{2}$ are unlike fractions. So, we convert them into like fractions first.

Multiples of 3 are 3, 6, 9, (12), 15, 18, 21, (24), 27, ...

Multiples of 6 are 6, (12), 18, (24), 30, 36, ...

Multiples of 12 are (12), (24), ...

Multiples of 4 are 4, 8, (12), 16, 20, (24), ...

Multiples of 2 are 2, 4, 6, 8, 10, (12), 14, 16, 18, 20, 22, (24), ...

Common multiples of 3, 6, 12, 4 and 2 are 12, 24, ...

LCM of 3, 6, 12, 4 and 2 is 12.

The given fractions with 12 as the denominator are as follows :

$\frac{1}{3} = \frac{1\times4}{3\times4} = \frac{4}{12}, \quad \frac{5}{6} = \frac{5\times2}{6\times2} = \frac{10}{12}, \quad \frac{7}{12}$

$\frac{3}{4} = \frac{3\times3}{4\times3} = \frac{9}{12}, \quad \frac{1}{2} = \frac{1\times6}{2\times6} = \frac{6}{12}.$

The fraction with the greater numerator is greater for like fractions.

So, the given fractions in ascending order are as follows :

$\frac{4}{12}, \frac{6}{12}, \frac{7}{12}, \frac{9}{12}, \frac{10}{12}$

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

3. **(a)** The fraction with the greater numerator is greater for like fractions.

So, the given fractions in descending order are as follows :

$\frac{6}{7}, \frac{5}{7}, \frac{4}{7}, \frac{3}{7}, \frac{1}{7}$

(b) $\frac{5}{6}, \frac{3}{9}, \frac{17}{36}, \frac{9}{4}$ are unlike fractions, so, we convert them into like fractions first.

36 is divisible by 6, 9 and 4 each.

LCM of 6, 9, 36, 4 is 36.

The given fractions with 36 as the denominator are as follows :

$\frac{5}{6} = \frac{5\times6}{6\times6} = \frac{30}{36},$

$\frac{3}{9} = \frac{3\times4}{9\times4} = \frac{12}{36}, \frac{17}{36}$

$\frac{9}{4} = \frac{9\times9}{4\times9} = \frac{81}{36}.$

The fraction with the greater numerator is greater for like fractions.

So, the given fractions in descending order are as follows :

$\frac{81}{36}, \frac{30}{36}, \frac{17}{36}, \frac{12}{36}$ or, $\frac{9}{4}, \frac{5}{6}, \frac{17}{36}, \frac{3}{9}$

(c) The fraction with the smaller denominator is greater for unlike fractions with same numerator.

So, the given fractions in descending order are as follows :

$\frac{8}{3}, \frac{8}{5}, \frac{8}{6}, \frac{8}{7}, \frac{8}{9}$

Exercise-5

1. (a) (i)  represents $\frac{5}{9}$ and  represents $\frac{6}{9}$.

Sum of the fractions for the shaded parts is $\frac{5}{9}+\frac{6}{9}=\frac{5+6}{9}=\frac{11}{9}$.

(b) (iii) Rohit spent $\left(\frac{1}{3}+\frac{1}{4}\right)$ of the money.

LCM of 3 and 4 = 12

$$\frac{1}{3}=\frac{1\times4}{3\times4}=\frac{4}{12}, \qquad \frac{1}{4}=\frac{1\times3}{4\times3}=\frac{3}{12}$$

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

So, Rohit spent $\frac{7}{12}$ of the money.

(c) (ii) Total time taken $= \left(\frac{1}{6}+\frac{3}{10}\right)$ hour

$= \left(\frac{5}{30}+\frac{9}{30}\right)$ hour

$= \left(\frac{5+9}{30}\right)$ hour

$= \frac{14}{30}$ hour

$= \left(\frac{14\div2}{30\div2}\right)$ hour [HCF of 14 and 30 = 2]

$= \frac{7}{15}$ hour

[LCM of 6 and 10 = 30; $\frac{1}{6}=\frac{1\times5}{6\times5}=\frac{5}{30}$, $\frac{3}{10}=\frac{3\times3}{10\times3}=\frac{9}{30}$]

Thus, Jyoti took $\frac{7}{15}$ hour in all to complete her homework.

2. (a) $\frac{13}{19}+\frac{5}{19}=\frac{13+5}{19}=\frac{18}{19}$

(b) $\frac{5}{21}+\frac{10}{21}=\frac{5+10}{21}=\frac{15}{21}$

$\frac{15}{21}=\frac{15\div3}{21\div3}=\frac{5}{7}$ (HCF of 15 and 21 = 3)

Thus, $\frac{5}{21}+\frac{10}{21}=\frac{5}{7}$

(c) $\frac{3}{10}+\frac{4}{15}=\frac{9}{30}+\frac{8}{30}$

$=\frac{9+8}{30}=\frac{17}{30}$

[LCM of 10 and 15 = 30; $\frac{3}{10}=\frac{3\times3}{10\times3}=\frac{9}{30}$, $\frac{4}{15}=\frac{4\times2}{15\times2}=\frac{8}{30}$]

(d) $\frac{7}{16}+\frac{5}{24}=\frac{21}{48}+\frac{10}{48}$

$=\frac{21+10}{48}=\frac{31}{48}$

[LCM of 16 and 24 = 48; $\frac{7}{16}=\frac{7\times3}{16\times3}=\frac{21}{48}$, $\frac{5}{24}=\frac{5\times2}{24\times2}=\frac{10}{48}$]

(e) $\frac{11}{15}+\frac{1}{6}=\frac{22}{30}+\frac{5}{30}$

$=\frac{22+5}{30}=\frac{27}{30}$

[LCM of 15 and 6 = 30; $\frac{11}{15}=\frac{11\times2}{15\times2}=\frac{22}{30}$, $\frac{1}{6}=\frac{1\times5}{6\times5}=\frac{5}{30}$]

Now, $\frac{27}{30}=\frac{27\div3}{30\div3}=\frac{9}{10}$ (HCF of 27 and 30 = 3)

Thus, $\frac{11}{15}+\frac{1}{6}=\frac{9}{10}$

3. (a) $\frac{7}{24} + \frac{5}{24} + \frac{6}{24} = \frac{7+5+6}{24} = \frac{18}{24}$

Now, $\frac{18}{24} = \frac{18 \div 6}{24 \div 6} = \frac{3}{4}$ (HCF of 18 and 24 = 6)

Thus, $\frac{7}{24} + \frac{5}{24} + \frac{6}{24} = \frac{3}{4}$

(b) $\frac{1}{18} + \frac{5}{18} + \frac{8}{18} = \frac{1+5+8}{18} = \frac{14}{18}$

Now, $\frac{14}{18} = \frac{14 \div 2}{18 \div 2} = \frac{7}{9}$ (HCF of 14 and 18 = 2)

Thus, $\frac{1}{18} + \frac{5}{18} + \frac{8}{18} = \frac{7}{9}$

(c) $\frac{3}{7} + \frac{6}{7} + \frac{2}{5} = \frac{15}{35} + \frac{30}{35} + \frac{14}{35}$

$= \frac{15+30+14}{35}$

$= \frac{59}{35} = 1\frac{24}{35}$

Thus, $\frac{3}{7} + \frac{6}{7} + \frac{2}{5} = 1\frac{24}{35}$

LCM of 7 and 5 = 35

$\frac{3}{7} = \frac{3 \times 5}{7 \times 5} = \frac{15}{35}$,

$\frac{6}{7} = \frac{6 \times 5}{7 \times 5} = \frac{30}{35}$,

$\frac{2}{5} = \frac{2 \times 7}{5 \times 7} = \frac{14}{35}$

(d) $\frac{2}{7} + \frac{3}{4} + \frac{1}{28} = \frac{8}{28} + \frac{21}{28} + \frac{1}{28}$

$= \frac{8+21+1}{28} = \frac{30}{28}$

LCM of 7, 4, 28 = 28

$\frac{2}{7} = \frac{2 \times 4}{7 \times 4} = \frac{8}{28}$,

$\frac{3}{4} = \frac{3 \times 7}{4 \times 7} = \frac{21}{28}$

Now, $\frac{30}{28} = \frac{30 \div 2}{28 \div 2} = \frac{15}{14}$ (HCF of 30 and 28 = 2)

$\frac{15}{14}$ is an improper fraction, so, we convert it into a mixed fraction.

$\frac{15}{14} = 1\frac{1}{14}$

Thus, $\frac{2}{7} + \frac{3}{4} + \frac{1}{28} = 1\frac{1}{14}$

Exercise-6

1. (a) (ii) Tina completed $\frac{3}{4}$ of her homework.

Work left = $1 - \frac{3}{4} = \frac{4}{4} - \frac{3}{4} = \frac{4-3}{4} = \frac{1}{4}$

(b) (iii) $\frac{2}{5}$ and $\frac{1}{2}$ are unlike fractions, so, we convert them into like fractions first.

LCM of 5 and 2 = 10

$\frac{2}{5} = \frac{2\times2}{5\times2} = \frac{4}{10}$, $\frac{1}{2} = \frac{1\times5}{2\times5} = \frac{5}{10}$

$\frac{5}{10}$ is greater than $\frac{4}{10}$. Thus, Sonal bought more ribbon.

$\frac{1}{2} - \frac{2}{5} = \frac{5}{10} - \frac{4}{10} = \frac{5-4}{10} = \frac{1}{10}$

Thus, Sonal bought $\frac{1}{10}$ m longer ribbon than Manu.

2. **(a)** $\frac{11}{14} - \frac{7}{14} = \frac{11-7}{14} = \frac{4}{14}$

Now, $\frac{4}{14} = \frac{4 \div 2}{14 \div 2} = \frac{2}{7}$ (HCF of 4 and 14 = 2)

Thus, $\frac{11}{14} - \frac{7}{14} = \frac{2}{7}$

(b) $\frac{15}{24} - \frac{7}{24} = \frac{15-7}{24} = \frac{8}{24}$

Now, $\frac{8}{24} = \frac{8 \div 8}{24 \div 8} = \frac{1}{3}$ (HCF of 8 and 24 = 8)

Thus, $\frac{15}{24} - \frac{7}{24} = \frac{1}{3}$

(c) $\frac{8}{18} - \frac{3}{18} = \frac{8-3}{18} = \frac{5}{18}$

(d) $\frac{17}{15} - \frac{13}{15} = \frac{17-13}{15} = \frac{4}{15}$

3. **(a)** $\frac{12}{13} - \boxed{\frac{9}{13}} = \frac{3}{13}$ **(b)** $\frac{17}{21} - \boxed{\frac{11}{21}} = \frac{6}{21}$

(c) $\frac{5}{9} - \frac{4}{9} = \boxed{\frac{1}{9}}$ **(d)** $\boxed{\frac{7}{15}} - \frac{4}{15} = \frac{3}{15}$

4. **(a)** $\frac{5}{8} - \frac{1}{4} = \frac{5}{8} - \frac{2}{8}$

$= \frac{5-2}{8} = \frac{3}{8}$

[LCM of 8 and 4 = 8
$\frac{1}{4} = \frac{1 \times 2}{4 \times 2} = \frac{2}{8}$]

(b) $\frac{3}{5} - \frac{4}{10} = \frac{6}{10} - \frac{4}{10}$

$= \frac{6-4}{10} = \frac{2}{10}$

[LCM of 5 and 10 = 10
$\frac{3}{5} = \frac{3 \times 2}{5 \times 2} = \frac{6}{10}$]

Now, $\frac{2}{10} = \frac{2 \div 2}{10 \div 2} = \frac{1}{5}$ (HCF of 2 and 10 = 2)

Thus, $\frac{3}{5} - \frac{4}{10} = \frac{1}{5}$

(c) $\frac{6}{7} - \frac{5}{6} = \frac{36}{42} - \frac{35}{42}$

$= \frac{36-35}{42}$

$= \frac{1}{42}$

[LCM of 7 and 6 = 42
$\frac{6}{7} = \frac{6 \times 6}{7 \times 6} = \frac{36}{42}$,
$\frac{5}{6} = \frac{5 \times 7}{6 \times 7} = \frac{35}{42}$]

(d) $\frac{11}{12} - \frac{3}{4} = \frac{11}{12} - \frac{9}{12}$

$= \frac{11-9}{12} = \frac{2}{12}$

[LCM of 12 and 4 = 12
$\frac{3}{4} = \frac{3 \times 3}{4 \times 3} = \frac{9}{12}$]

Now, $\frac{2}{12} = \frac{2 \div 2}{12 \div 2} = \frac{1}{6}$ (HCF of 2 and 12 = 2)

Thus, $\frac{11}{12} - \frac{3}{4} = \frac{1}{6}$