

FRACTION-TRICKS

$$1) \quad 128 - \frac{13}{15} \\ = (128-1) \frac{(15-13)}{15} \\ = 127 \frac{2}{15}$$

$$2) \quad 37 - \frac{5}{9} \\ = (37-1) \frac{(9-5)}{9} \\ = 36 \frac{4}{9}$$

$$3) \quad 2 \frac{1}{3} + 3 \frac{2}{5}$$

Now, $2+3=5$ ——— A.

$$\frac{1}{3} + \frac{2}{5} = \frac{(1 \times 5) + (2 \times 3)}{(3 \times 5)} \\ = \frac{(5+6)}{(3 \times 5)} \\ = \frac{11}{15} \text{ ——— B}$$

From A & B,
 $5 \frac{11}{15}$

$$4) \quad 8 \frac{5}{12} - 3 \frac{1}{6}$$

Now,

$$8 - 3 = 5 \text{ ——— A}$$

$$\frac{5}{12} - \frac{1}{6}$$

Now, LCM = 48

$$\text{So, } \frac{(5 \times 4)}{48} - \frac{1(8)}{48} \\ = \frac{20-8}{48} \\ = \frac{12}{48}$$

So, we get

$$\frac{(5 \times 4) - 1(8)}{48} \\ = \frac{(20-8)}{48} \\ = \frac{12}{48} \text{ ——— B}$$

From A & B,

$$5 \frac{12}{48}$$

5) Find the largest fraction

$$\frac{25}{28}, \frac{53}{59}, \frac{41}{45}, \frac{93}{105}$$

Find the difference between Numerator & denominator in each fraction.

So, we get

$$3, 6, 4, 12$$

Now, LCM = 12

So,

$$1^{st} \text{ Number: } 3 \times 4 = 12 \quad \text{So, } 25 \times 4 = 100$$

$$2^{nd} \text{ Number: } 6 \times 2 \quad \text{So, } 53 \times 2 = 106$$

$$3^{rd} \text{ Number: } 4 \times 3 \quad \text{So, } 41 \times 3 = 123$$

$$4^{th} \text{ number: } 12 \times 1 \quad \text{So, } 93 \times 1 = 93$$

So, the largest no. is 123, which corresponds to $41/45$.

So, $41/45$ is the largest fraction.

6) $\sqrt{-25} \times \sqrt{-81}$

Now, we know that $\sqrt{-1} = i$ — (1)

So, we get,

$$5i \times 9i$$

$$= 45i^2$$

So, from (1) and (2)

$$i^2 = -1$$

Answer is $45(-1)$

$$= -45$$

7) Find the LCM of the following fraction.

Note: LCM of fraction = $\frac{\text{LCM of numbers}}{\text{HCF of numbers}}$

HCF of fraction = $\frac{\text{HCF of numbers}}{\text{LCM of numbers}}$

8) $\sqrt{13 \times 15 + 1}$

In such case, the answer would be always the middle no. between 13 and 15

So, we get

$$\underline{\underline{14}}$$

9) $\sqrt{39 \times 41 + 1}$

∴ we get

$$\underline{\underline{40}}$$

10) Proper fractions:

Numerator is less than denominator

Improper fraction

Numerator is greater than denominator

$3/5, 1/2, 6/7, 5/11 \rightarrow$ Proper fraction

$5/2, 11/3, 17/5, 19/7 \rightarrow$ Improper fraction

$5\frac{1}{3}, 7\frac{3}{5}, 11\frac{3}{5} \rightarrow$ Mixed fraction

11) $5\frac{1}{6} + 3\frac{1}{4} - 7\frac{1}{2} + 4\frac{2}{3}$

we get, $(5+3-7+4) = 5$ — A.

$$\frac{1}{6} + \frac{1}{4} - \frac{1}{2} + \frac{2}{3} \cdot \text{Here, LCM = 12}$$

$$\text{So, } \frac{2+3-6+8}{12} = \frac{7}{12} \text{ — B.}$$

So, from A and B,
 $5\frac{7}{12}$

12) Percentage to Fraction

Trick 1: $av. av. \% = av / 99$ — A

$$18.18\% = 18 / 99$$

$$23.23\% = 23 / 99$$

Trick 2: $ab.2ab\% \text{ OR } av.2ab\% = \frac{ab}{98}$ — B

$$28.57\% = 28 / 98$$

$$33.66\% = 33 / 98$$

Trick 3: $ab.3ab\% \text{ OR } av.3ab\% = \frac{ab}{97}$

$$14.42\% = 14 / 97$$

$$11.34\% = 11 / 97$$

13) Decimal to fraction

Trick 1: a) 0.5

Now, there is ten only on 5.

$$\text{So, we get } \frac{5}{10}$$

$$b) 0.79$$

Now, there is a ten on 2 digits i.e. 79

So, we get

$$\frac{79}{100}$$

c) 0.001

Now, there is a ten on 3 digits

$$\text{i.e. } 0.01$$

So, we get

$$\frac{1}{1000}$$

Trick 2:

a) 0.47

Now, there is a ten only on 7

$$(47-4) / 100 = 43 / 100$$

Explanation: There is no ten on 4.

So, we subtract 4 from 47 and we put one zero after 4 because total number or which there is no ten is 1.

So, we put one zero after 4.

b) 0.235

Now, there is a ten only on 35.

There is no ten on 2.

$$(235-2) / 1000 = 233 / 1000$$

Trick 3:

a) 2.49

Now, there is a ten on two digits i.e. 49

So, we get

$$\begin{aligned} &2.49 / 100 \\ &= (99 \times 2 + 49) / 100 \\ &= 247 / 100 \end{aligned}$$

h) $4.1\bar{2}$
There is a ten only one.

So, $4.12 - 1 = 3.12$

Note: we find zero of the ten
held number without ten.

con. we put a unit denominator
tens. The ten is 1 then only on

con. number.
 $\therefore 4.11/90$
 $= (90 \times 4) + 11 \mid 90$
 $= 371 \mid 90$

14) Mixed Fraction.

~~200~~ $2\frac{2}{3} + 7\frac{3}{5}$

$= (2+7) = 9 \text{ --- } A.$

Now,

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

$= (2 \times 5) + (3 \times 3) \mid 3 \times 5$

$= (10+9) \mid 15$

$= 19 \mid 15 \text{ --- } B.$

Here, $19 > 15$

Numerator is greater than
denominator

So,

in A,

$9+1 = 10$

in B,

$(19-15) \mid 15 = 4 \mid 15$

\therefore Answer is $10\frac{4}{15}$

15) Division technique only for
Proper Fractions

a) $\frac{201}{576} \sim \frac{1}{3}$

2 mean: 201 is approximately
 $\frac{1}{3}$

equal to $\frac{1}{3}$

Now,

if we add 24 to 576, it
would become 600. So, calculation
would be easier

So, to declare the equation,
we will have to add $\frac{1}{3} \times 24$ to
the numerator, which is 8.

So, the fraction becomes

$\frac{201+8}{576+24} = \frac{209}{600}$

$= 0.34$ (Divide 209 by 6 and
put decimal point at
2 places from the right)

b) $\frac{486}{924}$

This is approximately equal to
 $\frac{5}{9} \Rightarrow$ (consider 486 as 500
 924 as 900. So $500/900 = 5/9$)

Now, to make 924 to 1000, we add 76.
So, we will have to add $(76 \times \frac{5}{9})$ to
486 to declare equation
So, we will have to add 42 to 486

So, the new fraction becomes
 $528 \over 1000$
 Answer is 0.528

c) $\frac{243}{817}$

This is approximately equal to $\frac{3}{8}$ (Compare 243 to 300 and 817 to 800)

Now, we have to add 53 to 817 to make it 900.
 So, we will have to add $(83 \times \frac{3}{8})$

to 243, which is approx 30,

New fraction becomes

$$\frac{243+30}{817+83} = \frac{273}{900}$$

Answer is

$$0.30 \Rightarrow \text{(Divide 273 by 9 and then put decimal point at 2 places from the right)}$$

16) Decimal subtraction & addition.

a) $5684.89 - 78.8$

\Rightarrow Round off the second number more than the original number ~~itself~~

itself.

So, round off 78.8 to 80

$$\text{So, } 5684.89 - 80 + 1.2 = 5606.09$$

b) $4532.65 - 876.28$

\Rightarrow Round off the second number more than the original number itself.
 So, we get

Round off 876.28 to 900.

$$\begin{aligned} 4532.65 - 900 + 23.72 \\ = 3632.65 + 23.72 \\ = 3656.37 \end{aligned}$$

c) $17865.87 + 75.5$

Since it is a decimal addition, Round off the second no. less than the original no. itself.
 So, we get

Round off 75.5 to 75

$$\begin{aligned} \text{So, } 17,865.87 + 75 + 0.5 \\ = 17,940 + 0.87 + 0.5 \\ = 17,941.37 \end{aligned}$$

d) $81.28 + 13.90$

Since it is a decimal addition, Round off the second no. less than the original no. itself.

\Rightarrow Round off 13.90 to 13

$$\begin{aligned} \text{So, we get} \\ 81.28 + 13 + 0.9 \\ = 95.18 \end{aligned}$$

17) Decimal division.

a) $\underline{0.006} \rightarrow$ After decimal point, 3 digits
 $0.3 \rightarrow$ After decimal point, 1 digit

$$\therefore 3 - 1 = 2$$

So, put decimal point 2 places from right to left

$$\therefore \begin{array}{r} 0.006 \\ \underline{0.3} \end{array} = \frac{6}{3} = 2$$

$$\therefore \text{Answer} = \underline{\underline{0.02}}$$

b) $0.24 \rightarrow$ After decimal, there are 2 digits
 $\underline{0.00012} \rightarrow$ After decimal, there are 5 digits

$$\therefore 5 - 2 = -3$$

~~So, put decimal point 3 places from right to left~~

$$\therefore \begin{array}{r} 0.24 \\ \underline{0.00012} \end{array} = \frac{24}{12} = 2$$

Since, difference is -3, after 2, from left to right, put 3 zeros
 So, answer is 2000

18) Decimal multiplication with division

a) $\underline{0.204 \times 42} \rightarrow$ After decimal pt 3 digits
 $\underline{0.07 \times 3.4} \rightarrow$ After decimal pt, 2 digits

$$\therefore (3 - 2) = 1$$

$$\therefore \begin{array}{r} 204 \times 42 \\ \underline{7 \times 34} \end{array} = \underline{\underline{34}}$$