



FRACTION + DECIMAL  
 $\frac{2}{3}$   $\frac{3}{2}$   
 0.001  
 5.326

1. Proper Fraction,  $N < D \Rightarrow \frac{2}{3}$   $2 < 3$
2. Improper Fraction,  $N > D \Rightarrow \frac{3}{2}$   $3 > 2$
3. Mixed Fraction,  $2\frac{1}{2} \Rightarrow \frac{5}{2}$

1.  $\frac{2}{17}, \frac{3}{17}, \frac{9}{17}, \frac{16}{17}$  → Proper Fraction  
 ascending →  $\frac{2}{17} < \frac{3}{17} < \frac{9}{17} < \frac{16}{17}$   
 descending →  $\frac{16}{17} > \frac{9}{17} > \frac{3}{17} > \frac{2}{17}$

2.  $\frac{4}{5}, \frac{6}{7}, \frac{13}{14}, \frac{11}{12}$

M-1  
 $\frac{4}{5}, \frac{6}{7}, \frac{13}{14}, \frac{11}{12}$   
 ↓ Smallest  
 ↘ Greatest

M-2  
 $\frac{4}{5} \times \frac{6}{7} = \frac{24}{35}$   
 $\frac{6}{7} \times \frac{13}{14} = \frac{39}{49}$   
 $28 < 30$   
 $84 < 91$

$\frac{13}{14} \times \frac{11}{12} = \frac{143}{168}$   
 $12 \times (12+1) = 144$   
 $144 > 143$   
 $156 > 154$

$\frac{13}{14} > \frac{11}{12} > \frac{6}{7} > \frac{4}{5}$

2.  $\frac{5}{11}, \frac{5}{7}, \frac{3}{8}, \frac{6}{11}$

$\frac{5}{11} : 11-5 = 6^{x5} \Rightarrow \frac{5 \times 6}{11 \times 6} = \frac{30}{66}$  (or)  $\frac{5 \times 5}{11 \times 5}$

$\frac{5}{7} : 7-5 = 2^{x5} \rightarrow \frac{5 \times 2}{7 \times 2} = \frac{10}{14}$

$\frac{3}{8} : 8-3 = 5^{x6} \rightarrow \frac{3 \times 6}{8 \times 6} = \frac{18}{48}$

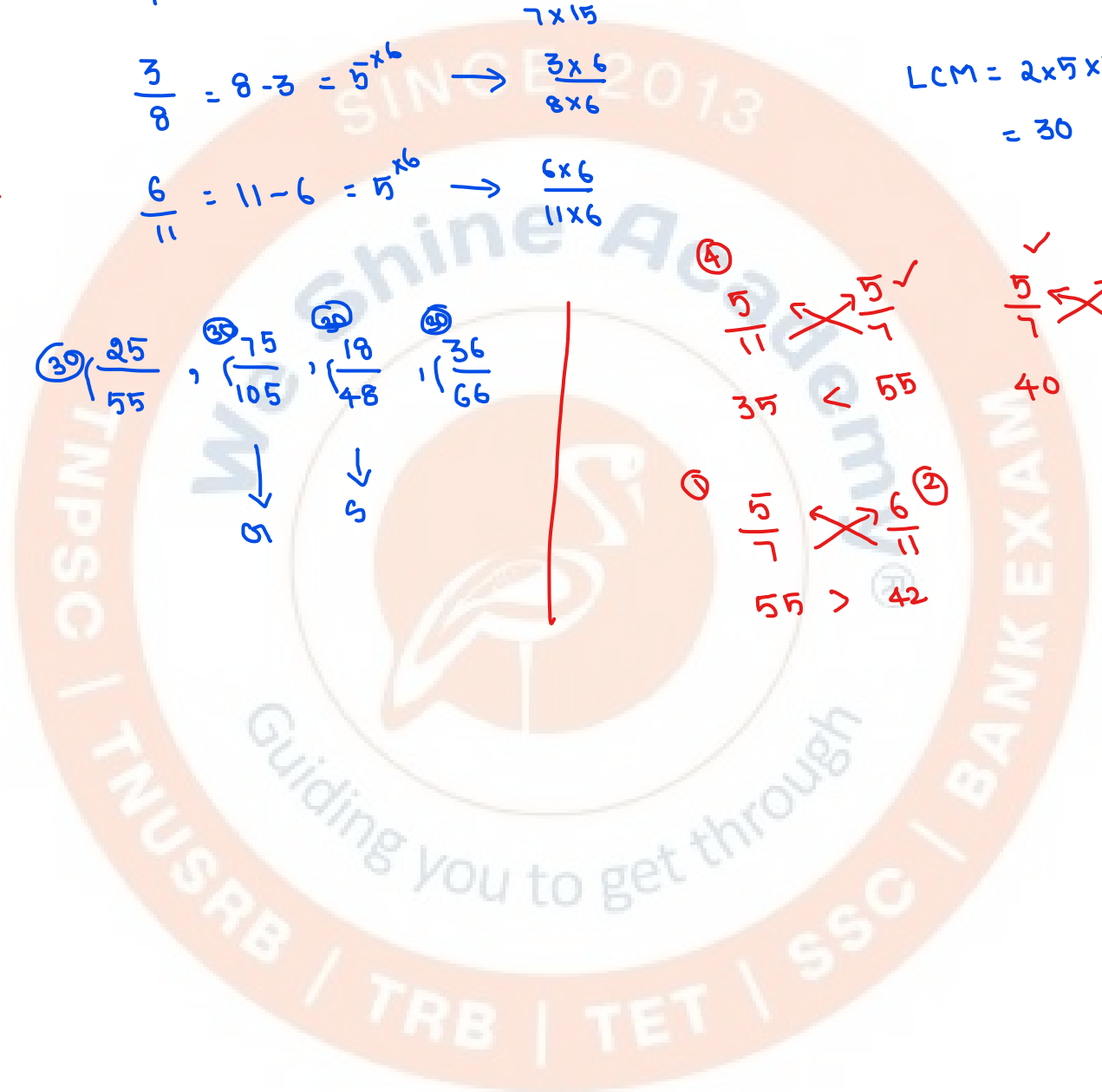
$\frac{6}{11} : 11-6 = 5^{x6} \rightarrow \frac{6 \times 6}{11 \times 6} = \frac{36}{66}$

$$\begin{array}{r} 2 \overline{) 6, 2, 5, 5} \\ \underline{3, 1, 5, 5} \\ 3, 1, 1, 1 \end{array}$$

LCM =  $2 \times 5 \times 3 = 30$

$\textcircled{39} \frac{25}{55}$ ,  $\textcircled{40} \frac{75}{105}$ ,  $\textcircled{41} \frac{18}{48}$ ,  $\textcircled{42} \frac{36}{66}$   
 $5 \leftarrow$ ,  $5 \leftarrow$

$\textcircled{4} \frac{5}{11} < \frac{5}{7}$  ✓  
 $\frac{5}{11} < \frac{3}{8}$  ✓  
 $35 < 55$   
 $\textcircled{1} \frac{5}{11} > \frac{6}{11}$  ✓  
 $55 > 42$   
 $\frac{5}{11} > \frac{3}{8}$  ✓  
 $40 > 21$



DECIMAL

↳ 4 types

Type-1

$$0.5 = \frac{5}{10} = \frac{1}{2}$$

Terminating  $\rightarrow \frac{1}{2} = 0.5$

Type-2

$$0.\bar{7} = 0.7777\dots$$

$$= \frac{7}{9} //$$

Repeat

$$0.242424\dots$$

Non-Repeat

$$0.1246532\dots$$

Type-3

$$0.24\bar{3} = 0.2433333$$

$$= \frac{243 - 24}{900}$$

$$= \frac{219}{900} = \frac{73}{300}$$

$$\begin{array}{r} 243 \\ - 24 \\ \hline 219 \end{array}$$

Type-4

$$5.\bar{25} = 5 + 0.\bar{25}$$

$$= 5 + \frac{25}{99} = 5\frac{25}{99} //$$

→ Type-2



$$1. 0.535353 \dots \dots \infty$$

$$= 0.\overline{53}$$

$$= \frac{53}{99}$$

$$2. 0.8169169 \dots \infty = 0.\overline{8169}$$

$$= \frac{8169 - 8}{9990} = \frac{8161}{9990}$$

$$3. 0.68232323 \dots \infty$$

$$= 0.68\overline{23}$$

$$= \frac{6823 - 68}{9900} = \frac{6755}{9900}$$

$$\begin{array}{r} 68\overline{23} \\ 68 \\ \hline 6755 \end{array}$$

$$4) a.\overline{3} = 2 + 0.\overline{3}$$

$$= 2 + \frac{3}{9} = 2 + \frac{1}{3} = 2\frac{1}{3} \text{ (or) } \frac{7}{3}$$

$$5) 5.\overline{67}$$

$$= 5 + 0.\overline{67}$$

$$= 5 + \frac{67-6}{90}$$

$$= 5 + \frac{61}{90} = 5\frac{61}{90}$$

$$6) 13.\overline{792}$$

$$= 13 + 0.\overline{792}$$

$$= 13 + \frac{792-1}{990}$$

$$= 13 + \frac{791}{990} = 13\frac{791}{990}$$



$$\begin{aligned}
 7) \quad & \sqrt[3]{0.037} \\
 &= \sqrt[3]{\frac{37}{999}} \\
 &= \sqrt[3]{\frac{1}{27}} \\
 &= \sqrt[3]{\frac{1}{3^3}} \\
 &= \frac{1}{3} = 0.\bar{3}
 \end{aligned}$$

$$\begin{array}{r}
 27 \\
 37 \overline{) 999} \\
 \underline{74} \phantom{00} \\
 259 \\
 \underline{259} \\
 0
 \end{array}$$

$$\begin{array}{r}
 33 \\
 3 \overline{) 10} \\
 \underline{9} \\
 10
 \end{array}$$

$$8) \quad 0.\overline{45} \times 1.\overline{22}$$

$$\begin{aligned}
 & \frac{45}{99} \times \left(1 + \frac{22}{99}\right) \\
 &= \frac{45}{99} \times \frac{121}{99} \\
 &= \frac{5}{9} = 0.5555 \\
 &= 0.\bar{5}
 \end{aligned}$$

$$\begin{array}{r}
 99 \\
 22 \overline{) 181} \\
 \underline{181} \\
 0
 \end{array}$$

$$9) \quad 8.\overline{74} + 6.\overline{47}$$

$$8.\overline{74} = 8 + \frac{74-7}{90} = 8 + \frac{67}{90} = \frac{787}{90}$$

$$6.\overline{47} = 6 + \frac{47-4}{90} = 6 + \frac{43}{90} = \frac{583}{90}$$

$$\frac{787}{90} + \frac{583}{90} = \frac{1370}{90} = 15.2222 = 15.\bar{2}$$

$$\begin{array}{r}
 787 \\
 583 \\
 \hline
 1370
 \end{array}$$

$$\begin{array}{r}
 15.2 \\
 9 \overline{) 137} \\
 \underline{9} \phantom{00} \\
 47 \\
 \underline{45} \\
 20 \\
 \underline{18} \\
 20
 \end{array}$$

$$\begin{array}{r}
 90 \times 8 \\
 \hline
 720 \\
 67 \\
 \hline
 787
 \end{array}$$

$$\begin{array}{r}
 90 \times 6 \\
 \hline
 540 \\
 43 \\
 \hline
 583
 \end{array}$$



$$10) 11.\bar{4} + 22.\bar{567} - 33.\bar{59}$$

$$11.\bar{4} = 11 + \frac{4}{9} = \frac{103}{9}$$

$$22.\bar{567} = 22 + \frac{567-5}{990} = 22 + \frac{562}{990} = \frac{11171}{495}$$

$$33.\bar{59} = 33 + \frac{59-5}{90} = 33 + \frac{54}{90} = \frac{168}{5}$$

$$\frac{103}{9} + \frac{11171}{495} - \frac{168}{5}$$

$$\frac{5665 + 11171 - 16632}{495}$$

$$= \frac{204}{495}$$

$$= 0.4121212$$

$$= 0.\bar{412}$$

$$\begin{array}{r} 1 \\ 495 \times 22 \\ \hline 990 \\ 990 \\ \hline 10890 \\ 281 \\ \hline 11171 \end{array}$$

$$\begin{array}{r} 1 \\ 33 \times 5 \\ \hline 165 \\ 3 \\ \hline 168 \end{array}$$

$$\begin{array}{r} 103 \times 55 \\ \hline 515 \\ 515 \\ \hline 5665 \end{array}$$

$$\begin{array}{r} 67 \\ 168 \times 99 \\ \hline 1512 \\ 1512 \\ \hline 16632 \end{array}$$

$$\begin{array}{r} 5 \\ 9 \overline{) 9,495.5} \\ \underline{9,99.1} \\ 1,11 \\ 9 \times 11 \times 5 \\ \underline{99 \times 5} \\ 495 \\ .412 \\ 495 \overline{) 2040} \\ \underline{1980} \\ 60 \end{array}$$

$$\begin{array}{r} 5600 \\ 495 \\ \hline 91050 \\ 990 \\ \hline 60 \end{array}$$













# FRACTION & DECIMAL

