

Unit # 3Pg. 1

## Ex # 3.1

Convert decimals into rational no's

Q#1. (Solutions)

i)  $0.36$

$$= \frac{36}{100} = \frac{9}{25} \quad (\div \text{ by } 4)$$

ii)  $0.75$

$$= \frac{75}{100} = \frac{15}{20} \quad (\div \text{ by } 5)$$

$$= \frac{3}{4} \quad (\div \text{ by } 5)$$

iii)  $-6.08$

$$= -\frac{608}{100} = -\frac{152}{25} \quad (\div \text{ by } 4)$$

iv)  $-0.125$

$$= -\frac{125}{1000} = -\frac{5}{40} \quad (\div \text{ by } 25)$$

$$(ii) \frac{2}{7} \approx 0.286$$

$$\begin{array}{r} 0.286 \\ 7 \overline{) 20} \\ \underline{14} \\ 60 \\ \underline{56} \\ 40 \\ \underline{35} \\ 50 \\ \underline{49} \\ 1 \end{array}$$

$$(iii) \frac{5}{11} \approx 0.455$$

$$\begin{array}{r} 0.455 \\ 11 \overline{) 50} \\ \underline{44} \\ 60 \\ \underline{55} \\ 50 \\ \underline{44} \\ 60 \\ \underline{55} \\ 5 \end{array}$$

$$iv) \frac{8}{13} \approx 0.615...$$

$$\begin{array}{r} 0.615 \\ 13 \overline{) 80} \\ \underline{78} \\ 20 \\ \underline{13} \\ 70 \\ \underline{65} \\ 5 \end{array}$$

$$v) \frac{10}{6} \approx 1.666...$$

$$\begin{array}{r} 1.666 \\ 6 \overline{) 10} \\ \underline{6} \\ 40 \\ \underline{36} \\ 40 \\ \underline{36} \\ 4 \end{array}$$

$$\text{ii. } \frac{27}{20}$$

$$= 1.35$$

(terminating)

$$\begin{array}{r} 1.35 \\ 20 \overline{) 27} \\ \underline{20} \\ 70 \\ \underline{60} \\ 100 \\ \underline{100} \\ \hline X \end{array}$$

$$\text{iii) } \frac{3}{25}$$

$$= 0.12$$

(terminating)

$$\begin{array}{r} 0.12 \\ 25 \overline{) 30} \\ \underline{25} \\ 50 \\ \underline{50} \\ \hline X \end{array}$$

$$\text{iv) } \frac{31}{50}$$

$$= 0.62$$

(terminating)

$$\begin{array}{r} 0.62 \\ 50 \overline{) 310} \\ \underline{300} \\ 100 \\ \underline{100} \\ \hline X \end{array}$$

$$\text{v) } \frac{5}{1000}$$

$$= 0.005$$

(terminating)

$$\begin{array}{r} 0.005 \\ 1000 \overline{) 5000} \\ \underline{5000} \\ \hline X \end{array}$$



$$\text{ix) } \frac{24}{32}$$

$$= 0.75$$

(terminating)

$$\begin{array}{r} 0.75 \\ 32 \overline{) 240} \\ \underline{224} \\ 160 \\ \underline{160} \\ \hline x \end{array}$$

Q#3: Express in non-terminating decimals upto 3 decimal places

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

$$= 1.333 \dots$$

$$\begin{array}{r} 1.333 \\ 3 \overline{) 4} \\ \underline{3} \\ 10 \\ \underline{9} \\ 10 \\ \underline{9} \\ 10 \\ \underline{9} \\ 1 \end{array}$$

vi)  $\frac{24}{22} \approx 1.0909\dots$

$$\begin{array}{r} 1.0909\dots \\ 22 \overline{) 24} \\ \underline{22} \\ 200 \\ \underline{198} \\ 200 \\ \underline{198} \\ 2 \end{array}$$

vii)  $\frac{7}{12} \approx 0.583\dots$

$$\begin{array}{r} 0.583 \\ 12 \overline{) 70} \\ \underline{60} \\ 100 \\ \underline{96} \\ 40 \\ \underline{36} \\ 4 \end{array}$$

Q. 4: Round off upto three decimal places.

ii)  $5.41679$   
 $= 5.417$

vi)  $23.15147$   
 $= 23.151$

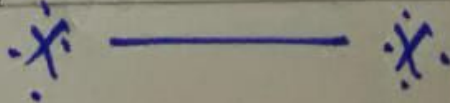
ii)  $11.10365$   
 $= 11.104$

iii)  $0.92517$   
 $= 0.925$

iv)  $3.10351$   
 $= 3.104$

(END of Ex# 3.2)

v)  $0.74206$   
 $= 0.742$



v.  $\frac{9}{6} = \frac{3}{2}$

It is a terminating decimal because its denominator has prime factor 2.

vi.  $\frac{20}{15} = \frac{4}{3}$

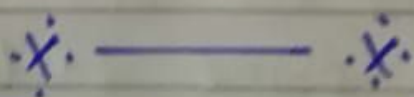
It is non-terminating because its denominator is 3.

vii.  $\frac{22}{7}$

It is non-terminating because its denominator is 7.

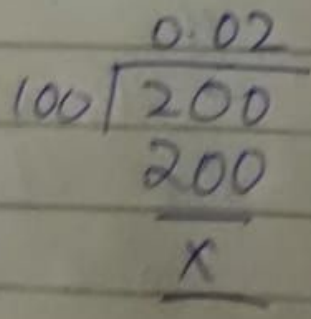
viii.  $\frac{4}{9}$

It is non-terminating because its denominator is 9.



Q#2. Express in terminating decimals

i.  $\frac{2}{100} = 0.02$   
(terminating)





3.2 Q#2 (Continue)  
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$$\begin{array}{r} \text{vi) } \frac{20}{8} \\ - 2.5 \\ \text{(terminating)} \end{array}$$

$$\begin{array}{r} 2.5 \\ 8 \overline{) 20} \\ \underline{16} \\ 40 \\ \underline{40} \\ \hline x \end{array}$$

$$\begin{array}{r} \text{vii) } \frac{21}{6} \\ = 3.5 \\ \text{(terminating)} \end{array}$$

$$\begin{array}{r} 3.5 \\ 6 \overline{) 21} \\ \underline{18} \\ 30 \\ \underline{30} \\ \hline x \end{array}$$

$$\begin{array}{r} \text{viii) } \frac{84}{64} \\ = 1.3125 \\ \text{(terminating)} \end{array}$$

$$\begin{array}{r} 1.3125 \\ 64 \overline{) 84} \\ \underline{64} \\ 200 \\ \underline{192} \\ 80 \\ \underline{64} \\ 160 \\ \underline{128} \\ 320 \\ \underline{320} \\ \hline x \end{array}$$

## Exercise # 3.2

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Q.1. Without actual divisions, separate terminating and non-terminating decimals.

i.  $\frac{13}{8}$

Sol: It is terminating decimal because its denominator has prime factors  $2 \times 2 \times 2 = 8$

ii.  $\frac{7}{25}$

Sol: It is terminating decimal because its denominator has prime factors  $5 \times 5 = 25$

iii.  $\frac{8}{3}$

Sol: It is non-terminating decimal because its denominator has no prime factor

iv.  $\frac{5}{11}$

Sol: It is non-terminating because its denominator has no prime factor



$$v) 6.46$$

$$= \frac{646}{100}$$

$$= \frac{323}{50} \quad (\div \text{ by } 2)$$

$$vi) 15.25$$

$$= \frac{1525}{100}$$

$$= \frac{305}{20} \quad (\div \text{ by } 5)$$

$$= \frac{61}{4} \quad (\div \text{ by } 5)$$

$$vii) 8.125$$

$$= \frac{8125}{1000}$$

$$= \frac{1625}{200} \quad (\div \text{ by } 5)$$

$$= \frac{325}{40} \quad (\div \text{ by } 5)$$

$$= \frac{65}{8} \quad (\div \text{ by } 5)$$

$$viii) -0.268$$

$$= -\frac{268}{1000} = -\frac{67}{250} \quad (\div \text{ by } 4)$$

·x· ————— ·x·