

DECIMAL NUMBERS

Ex - 8.1

Q1 Write in words:

a. 7.3 : Seven point Three

b. 13.615 : Thirteen point six one five

d. 111.953 : One hundred eleven point nine five Three.

c, e, f, g, h, i and j do your self.

Q2 Write in figures

a. Three hundred thirty point one one nine
= 330.119e. Twenty nine point six Three
= 29.63

b and d do yourself.

Q3 Write the following decimal numerals in expanded form.

a. $6.5 = 6 \text{ ones} + 5 \text{ tenths}$

$$= 6 \times 1 + 5 \times \frac{1}{10}$$

$$= 6 + \frac{5}{10}$$

So $6.5 = 6 + 0.5$

b. 49.67

= 4 tens + 9 ones + 6 tenths
+ 7 hundredths

$$= 4 \times 10 + 9 \times 1 + 6 \times \frac{1}{10} + 7 \times \frac{1}{100}$$

$$= 40 + 9 + \frac{6}{10} + \frac{7}{100}$$

$$= 40 + 9 + 0.6 + 0.07$$

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$$\begin{aligned}
 \text{d } 3.325 &: 3 \text{ ones} + 3 \text{ tenths} + 2 \text{ hundredths} + 5 \text{ thousandths} \\
 &= 3 \times 1 + 3 \times \frac{1}{10} + 2 \times \frac{1}{100} + 5 \times \frac{1}{1000} \\
 &= 3 + \frac{0.3}{10} + \frac{0.02}{100} + \frac{0.005}{1000} \\
 &= 3 + 0.3 + 0.02 + 0.005
 \end{aligned}$$

$$\begin{aligned}
 \text{h } 455.80 &= 4 \text{ hundred} + 5 \text{ tens} + 5 \text{ ones} + 8 \text{ tenths} \\
 &\quad 0 \text{ hundredth} \\
 &= 4 \times 100 + 5 \times 10 + 5 \times 1 + 8 \times \frac{1}{10} + 0 \times \frac{1}{100} \\
 &= 400 + 50 + 5 + \frac{8}{10} + \frac{0}{100} \\
 &= 400 + 50 + 5 + 0.8
 \end{aligned}$$

$$\begin{aligned}
 \text{j } 2.225 &= 2 \text{ ones} + 2 \text{ tenths} + 2 \text{ hundredths} + 5 \text{ thousandths} \\
 &= 2 \times 1 + 2 \times \frac{1}{10} + 2 \times \frac{1}{100} + 5 \times \frac{1}{1000} \\
 &= 2 + \frac{2}{10} + \frac{2}{100} + \frac{5}{1000} \\
 &= 2 + 0.2 + 0.02 + 0.005
 \end{aligned}$$

c, e, f, g, i do your self.

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Q4. Write the following as decimals.

$$a. 700 + 7 + \frac{6}{10} + \frac{8}{100} + \frac{9}{1000}$$

$$= 700 + 7 + 0.6 + 0.08 + 0.009$$

$$= 707.689$$

Rough

$$700.000$$

$$7.000$$

$$0.600$$

$$0.080$$

$$0.009$$

$$\underline{707.689}$$

$$b. 500 + 50 + 5 + \frac{5}{10} + \frac{5}{100} + \frac{5}{1000}$$

$$= 500 + 50 + 5 + 0.5 + 0.05 + 0.005$$

$$= 555.555$$

$$d. 9 + \frac{0}{10} + \frac{0}{100} + \frac{0}{1000}$$

$$= 9 + 0.0 + 0.00 + 0.000$$

$$= 9.000$$

c. do yourself.

Ex. 8.2

LIKE DECIMALS :- Decimal having the same number of decimal places is called like decimals

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Unlike decimals: Decimals having different number of decimal places are called Unlike Decimals

Q1 Convert the unlike decimals to like decimals

a. 3.895; 2.7; 6.55; 9.22;

3.895 has the highest number of decimal places, i.e., 3.

In order to make 2.7 a like decimal add 2 zeroes to the right of 2.7 i.e. 2.700
 In order to make 6.55 and 9.22 a like decimal add 1 zero to the right of 6.55 and 9.22 respectively i.e. 6.550 and 9.220

Ans 3.895; 2.700; 6.550; 9.220

b. 10.77; 8.546; 1.8; 3.45;

8.546 has the highest number of decimal places i.e. 3.

In order to make 10.77 and 3.45 a like decimal add one zero to the right of 10.77 and 3.45 respectively i.e. 10.770
3.450

In order to make 1.8 a like decimal and two zeroes to the right of 1.8 i.e. 1.800

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Ans. 10.770 ; 8.546 ; 1.800 ; 3.450

c and d your self.

Ques 2 Compare these decimals to find out which is greater

a. 28.65 and 28.606

Sol. First convert 28.65 and 28.606 into like decimals.

$$28.65 \rightarrow 28.650$$

$$28.606 \rightarrow 28.606$$

$$\underline{28.650} \text{ and } \underline{28.606}$$

Since the whole number parts are equal compare the tenths

$$28.\underline{6}50 \text{ and } 28.\underline{6}06$$

Here the tenths place are equal compare the hundredths place

$$28.6\underline{5}0 \text{ and } 28.6\underline{0}6$$

At the hundredths place

$$5 > 0$$

$$\therefore 28.650 > 28.606$$

b) 0.76 and 0.745

Sol First convert 0.76 and 0.745 into like decimals.

$$0.76 \rightarrow 0.760$$

$$0.745 \rightarrow 0.745$$

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0.760 and 0.745

Here in the thousandths place

$$0 < 5$$

$$\therefore 0.760 < 0.745$$

Q. 9.099 and 9.99

First convert 9.099 and 9.99 into like decimal

$$9.099 = 9.099$$

$$9.99 = 9.990$$

9.099 and 9.990

Here the whole number parts are equal
now compare the tenths part
since $0 < 9$

$$\therefore 9.099 < 9.990$$

Do c, d and e yourself.

Q3 Arrange in ascending order

Q. 6.7, 8.55, 7.06, 6.08

sol convert unlike decimal into like decimal

6.70 ; 8.55 ; 7.06 ; 6.08

Compare the whole part

6.70 and 6.08 have the same whole part ; so we will compare the tenths place

$$\text{Since } 7 > 0$$

$$\therefore 6.08 < 6.70 < 7.06 < 8.55$$

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e. 7.77; 7.7; 0.7; 0.777

Convert unlike decimals into like decimals

7.770; 7.700; 0.700; 0.777

on comparing

0.700 is smallest decimal

$$\therefore 0.700 < 0.777 < 7.700 < 7.770$$

f. 0.65; 0.6; 0.16; 1.6

sol. 0.65; 0.60; 0.16; 1.60

Since ~~the~~ 0.65; 0.60 and 0.16 have the same whole number part, so compare the ~~the~~ tenths part

$$0.16 < 0.60 < 0.65 < 1.60$$

Q4 Arrange in descending order.

a. 0.9; 0.62; 0.723; 0.45

Convert unlike decimals into like decimals

0.900; 0.620; 0.723; 0.450

Since the whole number parts are same; compare the tenths part

At tenths part $9 > 7 > 6 > 4$

$$\therefore 0.900 > 0.723 > 0.620 > 0.450$$

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8.3

Q1 Write decimals and the names of decimals for the following fractions.

$$= \frac{44}{1000} = 0.044$$

[As denominator has three zeroes; put decimal point 3 places from right in numerator and remove the denominator.

a. zero point zero four four

$$b. \frac{8}{100} = 0.08$$

zero point zero eight

$$c. \frac{8888}{100} = 88.88$$

In this case as the denominator has two zeroes; put decimal point 2 places from right in numerator and remove the denominator.

$$d. \frac{666}{10} = 66.6$$

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Q2 Convert the following common fraction into decimals.

a $\frac{2}{5} \rightarrow$ In order to convert common fraction into decimal make the denominator of the fraction equal to 10, 100 or 1000 etc

$$\frac{2}{5} \times \frac{2}{2} = \frac{4}{10} = \underline{0.4}$$

As denominator has one zero; put the decimal point after one place from right in numerator and remove the denominator

b $\frac{13}{20} \times \frac{5}{5} = \frac{65}{100} = 0.65$

c $4\frac{1}{2} = 4 + \frac{1 \times 5}{2 \times 5}$

$$= 4 + \frac{5}{10}$$

$$= 4 + 0.5$$

$$= 4.5 \quad \underline{\text{ans}}$$

d $12\frac{3}{25} = 12 + 0.12$

$$12 + \frac{3}{25} \times \frac{4}{4} = 12.12 \quad \text{ans}$$

$$12 + \frac{12}{100}$$

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Q3 Convert the following decimals into fractions.

$$a. 0.7 = \frac{7}{10}$$

$$b. 0.15 = \frac{15}{100} = \frac{3}{20}$$

$$c. 0.255 = \frac{255}{1000} = \frac{51}{200}$$

$$d. 8.836 = \frac{8836}{1000} = \frac{4418}{500} = \frac{2209}{250} = 8 \frac{209}{250}$$

$$e. 5.448 = \frac{5448}{1000} = \frac{2724}{500} = \frac{1362}{250} = \frac{681}{125} = 5 \frac{51}{125}$$

$$f. 2.4 = \frac{24}{10} = \frac{12}{5} = 2 \frac{2}{5}$$

$$g. 0.125 = \frac{125}{1000} = \frac{25}{200} = \frac{5}{40} = \frac{1}{8}$$

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