

Chapter-8

Decimals

2 MARKS QUESTIONS

1. Express as km using decimals.

(a) 8 m

(b) 88 m

(c) 8888 m

(d) 70 km 5 m

Solutions:

We know that there are 1000 metres in 1 km.

(a) $8 \text{ m} = 8 / 1000 \text{ km}$

$= 0.008 \text{ km}$

(b) $88 \text{ m} = 88 / 1000 \text{ km}$

$= 0.088 \text{ km}$

(c) $8888 \text{ m} = 8888 / 1000 \text{ km}$

$= 8.888 \text{ km}$

(d) $70 \text{ km } 5 \text{ m} = [(70 + 5 / 1000)] \text{ km}$

$= 70.005 \text{ km}$

2. Rashid spent ₹ 35.75 for the Maths book and ₹ 32.60 for the Science book. Find the total amount spent by Rashid.

Solutions:

Cost of Maths book = ₹ 35.75

Cost of Science book = ₹ 32.60

The total amount spent by Rashid is

35.75

+ 32.60

68.35

∴ The total amount of money spent by Rashid is ₹ 68.35.

3. Nasreen bought 3 m 20 cm cloth for her shirt and 2 m 5 cm cloth for her trouser. Find the total length of cloth bought by her.

Solutions:

Cloth of shirt = 3 m 20 cm

Cloth of trouser = 2 m 5 cm

The total length of the cloth is

3.20

+ 2.05

5.25

∴ The total length of cloth bought by Nasreen is 5.25 m.

4. Naresh walked 2 km 35 m in the morning and 1 km 7 m in the evening. How much distance did he walk in all?

Solutions:

Distance walked by Naresh in the morning = 2 km 35 m

= $[(2 + 35 / 1000)]$ km

= 2.035 km

Distance walked by him in the evening = 1 km 7 m

= $[(1 + 7 / 1000)]$ km

= 1.007 km

The total distance walked by Naresh is

2.035

+ 1.007

3.042

∴ The total distance walked by Naresh is 3.042 km.

5. Ravi purchased 5 kg 400 g rice, 2 kg 20 g sugar and 10 kg 850 g flour. Find the total weight of his purchases.

Solutions:

Weight of rice = 5 kg 400 g

$$= [(5 + 400 / 1000)] \text{ kg}$$

$$= 5.400 \text{ kg}$$

Weight of sugar = 2 kg 20 g

$$= [(2 + 20 / 1000)] \text{ kg}$$

$$= 2.020 \text{ kg}$$

Weight of flour = 10 kg 850 g

$$= [(10 + 850 / 1000)] \text{ kg}$$

$$= 10.850 \text{ kg}$$

The total weight of his purchases is

$$5.400$$

$$2.020$$

$$+ 10.850$$

$$18.270$$

∴ The total weight of his purchases is 18.270 kg

6. Find the value of the following:

(a) $9.756 - 6.28$

(b) $21.05 - 15.27$

Solutions:

(a) 9.756

$- 6.280$

3.476

(b) 21.05

$- 15.27$

5.78

7. Raju bought a book for ₹ 35.65. He gave ₹ 50 to the shopkeeper. How much money did he get back from the shopkeeper?

Solutions:

Money given to shopkeeper = ₹ 50.00

Price of the book = ₹ 35.65

The money Raju will get back from the shopkeeper will be the difference between these two.

∴ The money left with Raju is

50.00

– 35.65

14.35

Hence, the money left with Raju is ₹ 14.35.

8. Rani had ₹ 18.50. She bought one ice cream for ₹ 11.75. How much money does she have now?

Solutions:

Money with Rani = ₹ 18.50

Price of an ice cream = ₹ 11.75

Now, the money left with Rani will be the difference between these two.

Hence, the money left with her is

18.50

– 11.75

6.75

∴ The money left with Rani is ₹ 6.75.

9. Tina had 20 m 5 cm long cloth. She cuts 4 m 50 cm length of cloth from this for making a curtain. How much cloth is left with her?

Solutions:

Length of cloth = 20 m 5 cm

= 20.05 m

Length of cloth to make a curtain = 4 m 50 cm

= 4.50 m

The length of cloth left with Tina will be the difference between these two.

Thus, the length of cloth left with her is

20.05

– 4.50

15.55

∴ The length of the remaining cloth left with Tina is 15.55 m.

10. Namita travels 20 km 50 m every day. Out of this, she travels 10 km 200 m by bus and the rest by auto. How much distance does she travel by auto?

Solutions:

Total distance travelled by Namita = 20 km 50 m

= 20.050 km

Distance travelled by bus = 10 km 200 m

= 10.200 km

Distance travelled by auto = Total distance travelled – Distance travelled by bus

∴ Distance to be travelled by auto is

20.050

– 10.200

9.850

∴ Namita travelled 9.850 km by auto.

4 MARKS QUESTIONS

1. Write each of the following as decimals:

- (a) Seven-tenths**
- (b) Two tens and nine-tenths**
- (c) Fourteen point six**
- (d) One hundred and two ones**
- (e) Six hundred point eight**

Solutions:

- (a) The decimal form of Seven-tenths is $7 / 10 = 0.7$
- (b) The decimal form of two tens and nine-tenths is $20 + 9 / 10 = 20.9$
- (c) The decimal form of fourteen point six is 14.6
- (d) The decimal form of one hundred and two ones is $100 + 2 = 102.0$
- (e) The decimal form of six hundred point eight is 600.8

2. Write the following decimals as fractions. Reduce the fraction to the lowest form.

- (a) 0.6**
- (b) 2.5**
- (c) 1.0**
- (d) 3.8**
- (e) 13.7**

(f) 21.2

(g) 6.4

Solutions:

(a) $0.6 = 6 / 10$

$= 3 / 5$

(b) $2.5 = 25 / 10$

$= 5 / 2$

(c) $1.0 = 1$

$= 1$

(d) $3.8 = 38 / 10$

$= 19 / 5$

(e) $13.7 = 137 / 10$

(f) $21.2 = 212 / 10$

$= 106 / 5$

(g) $6.4 = 64 / 10$

$= 32 / 5$

3. Express the following as cm using decimals.

(a) 2 mm

(b) 30 mm

(c) 116 mm

(d) 4 cm 2 mm

(e) 162 mm

Solutions:

We know that

$$1 \text{ cm} = 10 \text{ mm}$$

$$1 \text{ mm} = 1 / 10 \text{ cm}$$

$$(a) 2 \text{ mm} = 2 / 10 \text{ cm}$$

$$= 0.2 \text{ cm}$$

$$(b) 30 \text{ mm} = 30 / 10 \text{ cm}$$

$$= 3.0 \text{ cm}$$

$$(c) 116 \text{ mm} = 116 / 10 \text{ cm}$$

$$= 11.6 \text{ cm}$$

$$(d) 4 \text{ cm } 2 \text{ mm} = [(4 + 2 / 10)] \text{ cm}$$

$$= 4.2 \text{ cm}$$

$$(e) 162 \text{ mm} = 162 / 10 \text{ cm} = 16.2 \text{ cm}$$

4. Show the following numbers on the number line.

(a) 0.2

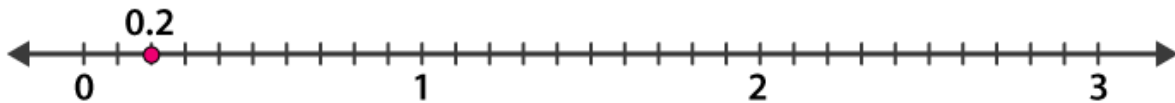
(b) 1.9

(c) 1.1

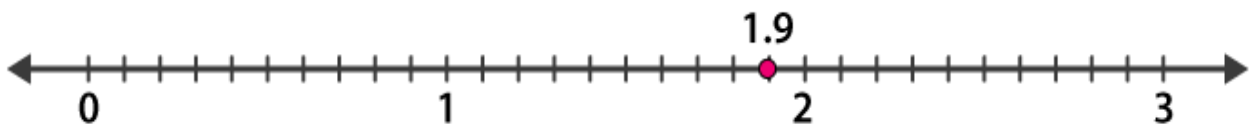
(d) 2.5

Solutions:

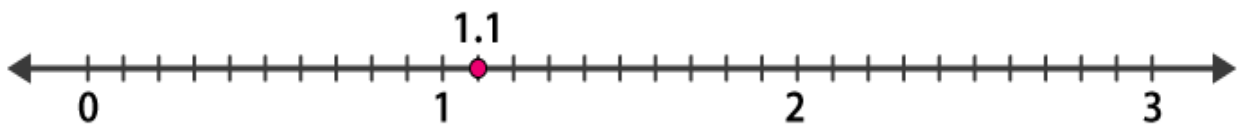
(a) 0.2 lies between points 0 and 1 on the number line. The space between 0 and 1 is divided into 10 equal parts. Therefore, each equal part will be equal to one-tenth. Thus, 0.2 is the second point between 0 and 1.



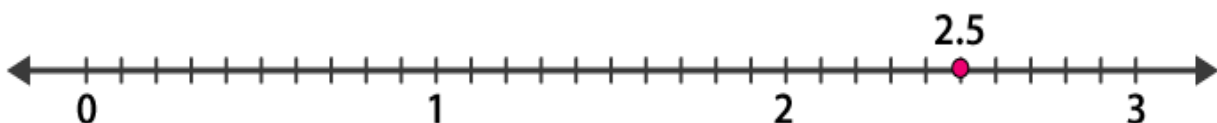
(b) 1.9 lies between points 1 and 2 on the number line. The space between 1 and 2 is divided into 10 equal parts. Therefore, each equal part will be equal to one-tenth. Thus, 1.9 is the ninth point between 1 and 2.



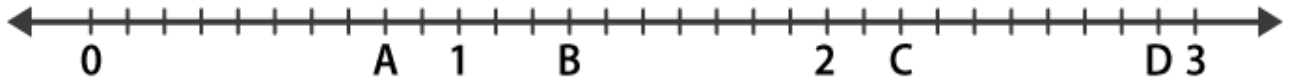
(c) 1.1 lies between points 1 and 2 on the number line such that the space between 1 and 2 is divided into 10 equal parts. Therefore, each equal part will be equal to one-tenth. Thus, 1.1 is the first point between 1 and 2.



(d) 2.5 lies between points 2 and 3 on the number line such that the space between 2 and 3 is divided into 10 equal parts. Therefore, each equal part will be equal to one-tenth. Thus, 2.5 is the fifth point between 2 and 3.



5. Write the decimal number represented by the points A, B, C, and D on the given number line.



Solutions:

- (a) Point A represents 0.8 cm on the given number line
- (b) Point B represents 1.3 cm on the given number line
- (c) Point C represents 2.2 cm on the given number line
- (d) Point D represents 2.9 cm on the given number line

6. Write the following decimals in the place value table.

- (a) 0.29
- (b) 2.08
- (c) 19.60
- (d) 148.32
- (e) 200.812

Solutions:

$$\begin{aligned} & \text{(a) } 0.29 \\ &= 0.2 + 0.09 \\ &= 2 / 10 + 9 / 100 \end{aligned}$$

$$\begin{aligned} & \text{(b) } 2.08 \\ &= 2 + 0.08 \end{aligned}$$

$$= 2 + 8 / 100$$

(c) 19.60

$$= 19 + 0.60$$

$$= 10 + 9 + 6 / 10$$

(d) 148.32

$$= 148 + 0.3 + 0.02$$

$$= 100 + 40 + 8 + 3 / 10 + 2 / 100$$

(e) 200.812

$$= 200 + 0.8 + 0.01 + 0.002$$

$$= 200 + 8 / 10 + 1 / 100 + 2 / 1000$$

Hundreds	Tens	Ones	Tenths	Hundredths	Thousandths
0	0	0	2	9	0
0	0	2	0	8	0
0	1	9	6	0	0
1	4	8	3	2	0
2	0	0	8	1	2

7. Write the numbers given in the following place value table in decimal form.

Rows	Hundreds	Tens	Ones	Tenths	Hundredths	Thousandths
	100	10	1	$1/10$	$1/100$	$1/1000$
(a)	0	0	3	2	5	0
(b)	1	0	2	6	3	0
(c)	0	3	0	0	2	5
(d)	2	1	1	9	0	2
(e)	0	1	2	2	4	1

Solutions:

(a) $3 + 2/10 + 5/100$

$= 3 + 0.2 + 0.05$

$= 3.25$

(b) $100 + 2 + 6/10 + 3/100$

$= 102 + 0.6 + 0.03$

$= 102.63$

(c) $30 + 2/100 + 5/1000$

$= 30 + 0.02 + 0.005$

$$= 30.025$$

$$(d) 200 + 10 + 1 + 9 / 10 + 2 / 1000$$

$$= 211 + 0.9 + 0.002$$

$$= 211.902$$

$$(e) 10 + 2 + 2 / 10 + 4 / 100 + 1 / 1000$$

$$= 12 + 0.2 + 0.04 + 0.001$$

$$= 12.241$$

8. Write each of the following as decimals.

$$(a) 20 + 9 + 4 / 10 + 1 / 100$$

$$(b) 137 + 5 / 100$$

$$(c) 7 / 10 + 6 / 100 + 4 / 1000$$

$$(d) 23 + 2 / 10 + 6 / 1000$$

$$(e) 700 + 20 + 5 + 9 / 100$$

Solutions:

$$(a) 20 + 9 + 4 / 10 + 1 / 100$$

$$= 29 + 0.4 + 0.01$$

$$= 29.41$$

$$(b) 137 + 5 / 100$$

$$= 137 + 0.05$$

$$= 137.05$$

$$(c) 7 / 10 + 6 / 100 + 4 / 1000$$

$$= 0.7 + 0.06 + 0.004$$

$$= 0.764$$

$$(d) 23 + 2 / 10 + 6 / 1000$$

$$= 23 + 0.2 + 0.006$$

$$= 23.206$$

$$(e) 700 + 20 + 5 + 9 / 100$$

$$= 725 + 0.09$$

$$= 725.09$$

9. Write each of the following decimals in words.

(a) 0.03

(b) 1.20

(c) 108.56

(d) 10.07

(e) 0.032

(f) 5.008

Solutions:

The following are the decimals in words

(a) 0.03 = zero point zero three

(b) 1.20 = one point two zero

(c) 108.56 = one hundred eight point five six

(d) 10.07 = ten point zero seven

(e) 0.032 = zero point zero three two

(f) 5.008 = five point zero zero eight

10. Between which two numbers in tenths place on the number line does each of the given number lie?

(a) 0.60

(b) 0.45

(c) 0.19

(d) 0.66

(e) 0.92

(f) 0.57

Solutions:

(a) 0.60 lies between 0 and 0.1 in tenths place

(b) 0.45 lies between 0.4 and 0.5 in tenths place

(c) 0.19 lies between 0.1 and 0.2 in tenths place

(d) 0.66 lies between 0.6 and 0.7 in tenths place

(e) 0.92 lies between 0.9 and 1.0 in tenths place

(f) 0.57 lies between 0.5 and 0.6 in tenths place

11. Make five more examples and find the greater number from them.

Solutions:

Five more examples are given below:

(a) 32.55 or 32.5

The whole parts for both numbers are the same. The tenth part is also equal, but the hundredth part of 32.55 is greater than that of 32.5.

Hence, $32.55 > 32.5$.

(b) 1 or 0.99

The whole part of 1 is greater than that of 0.99.

$\therefore 1 > 0.99$.

(c) 1.09 or 1.093

Here, both numbers have the same parts up to the hundredth. But the thousandth part of 1.093 is greater than that of 1.09,

$\therefore 1.093 > 1.09$,

(d) 2 or 1.99

The whole part of 2 is greater than that of 1.99,

$\therefore 2 > 1.99$,

(e) 2.08 or 2.085

Here, both numbers have the same parts up to the hundredth. But the thousandth part of 2.085 is greater than that of 2.08,

$\therefore 2.085 > 2.08$,

12. Express as rupees using decimals.

(a) 5 paise

(b) 75 paise

(c) 20 paise

(d) 50 rupees 90 paise

(e) 725 paise

Solutions:

We know that there are 100 paise in 1 rupee.

(a) 5 paise = $5 / 100$ rupees

= Rupees 0.05

(b) 75 paise = $75 / 100$ rupees

= Rupees 0.75

(c) 20 paise = $20 / 100$ rupees

= Rupees 0.20

(d) 50 rupees 90 paise = $[(50 + 90 / 100)]$ rupees

= Rupees 50.90

(e) 725 paise = $725 / 100$ rupees

= Rupees 7.25

13. Express as km using decimals.

(a) 8 m

(b) 88 m

(c) 8888 m

(d) 70 km 5 m

Solutions:

We know that there are 1000 metres in 1 km.

$$(a) 8 \text{ m} = 8 / 1000 \text{ km}$$

$$= 0.008 \text{ km}$$

$$(b) 88 \text{ m} = 88 / 1000 \text{ km}$$

$$= 0.088 \text{ km}$$

$$(c) 8888 \text{ m} = 8888 / 1000 \text{ km}$$

$$= 8.888 \text{ km}$$

$$(d) 70 \text{ km } 5 \text{ m} = [(70 + 5 / 1000)] \text{ km}$$

$$= 70.005 \text{ km}$$

14. Express as kg using decimals.

(a) 2 g

(b) 100 g

(c) 3750 g

(d) 5 kg 8 g

(e) 26 kg 50 g

Solutions:

We know that there are 1000 grams in 1 kg.

$$(a) 2 \text{ g} = 2 / 1000 \text{ kg}$$

$$= 0.002 \text{ kg}$$

$$(b) 100 \text{ g} = 100 / 1000 \text{ kg}$$

$$= 0.1 \text{ kg}$$

$$(c) 3750 \text{ g} = 3750 / 1000 \text{ kg}$$

$$= 3.750 \text{ kg}$$

$$(d) 5 \text{ kg } 8 \text{ g} = [(5 + 8 / 1000)] \text{ kg}$$

$$= 5.008 \text{ kg}$$

$$(e) 26 \text{ kg } 50 \text{ g} = [(26 + 50 / 1000)] \text{ kg}$$

$$= 26.050 \text{ kg}$$

15. Sunita travelled 15 km 268 m by bus, 7 km 7 m by car and 500 m on foot in order to reach her school. How far is her school from her residence?

Solutions:

Distance travelled by bus = 15 km 268 m

$$= [(15 + 268 / 1000)] \text{ km}$$

$$= 15.268 \text{ km}$$

Distance travelled by car = 7 km 7 m

$$= [(7 + 7 / 1000)] \text{ km}$$

$$= 7.007 \text{ km}$$

Distance walked by Sunita = 500 m

$$= 500 / 1000$$

$$= 0.500 \text{ km}$$

The total distance of the school from her residence is

$$15.268$$

$$7.007$$

$$+ 0.500$$

$$22.775$$

∴ The total distance of the school from her residence is 22.775 km.

16. Aakash bought vegetables weighing 10 kg. Out of this, 3 kg 500 g is onions, 2 kg 75 g is tomatoes, and the rest is potatoes. What is the weight of the potatoes?

Solutions:

Total weight of vegetables Aakash bought = 10.000 kg

Weight of onions = 3 kg 500 g

$$= 3.500 \text{ kg}$$

Weight of tomatoes = 2 kg 75 g

$$= 2.075 \text{ kg}$$

Weight of potatoes = Total weight of vegetables bought – (weight of onions + weight of tomatoes)

$$= 10.000 - (3.500 + 2.075)$$

3.500

+ 2.075

5.575

10.000

– 5.575

4.425

∴ 4.425 kg is the weight of the potatoes.

7 MARKS QUESTIONS

1. Write each of the following as decimals:

(a) $5 / 10$

(b) $3 + 7 / 10$

(c) $200 + 60 + 5 + 1 / 10$

(d) $70 + 8 / 10$

(e) $88 / 10$

(f) $4\frac{2}{10}$

(g) $3 / 2$

(h) $2 / 5$

(i) $12 / 5$

(j) $3\frac{3}{5}$

(k) $4\frac{1}{2}$

Solutions:

(a) $5 / 10 = 0.5$

(b) $3 + 7 / 10 = 3 + 0.7$

$= 3.7$

(c) $200 + 60 + 5 + 1 / 10 = 265 + 0.1$

$= 265.1$

$$(d) 70 + 8 / 10 = 70 + 0.8$$

$$= 70.8$$

$$(e) 88 / 10 = 80 / 10 + 8 / 10$$

$$= 8 + 0.8$$

$$= 8.8$$

$$(f)$$

$$\begin{aligned} 4\frac{2}{10} &= 4 + \frac{2}{10} \\ &= 4 + 0.2 \\ &= 4.2 \end{aligned}$$

$$(g) 3 / 2 = (2 + 1) / 2$$

$$= 2 / 2 + 1 / 2$$

$$= 1 + 0.5$$

$$= 1.5$$

$$(h) 2 / 5 = 0.4$$

$$(i) 12 / 5 = (10 + 2) / 5$$

$$= 10 / 5 + 2 / 5$$

$$= 2 + 0.4$$

$$= 2.4$$

$$(j)$$

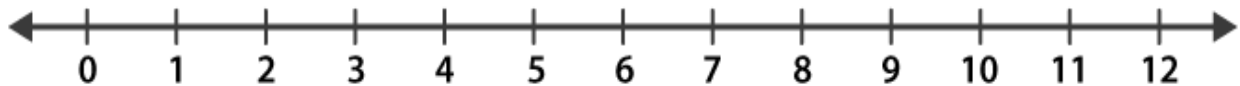
$$\begin{aligned} 3\frac{3}{5} &= 3 + \frac{3}{5} \\ &= 3 + 0.6 \\ &= 3.6 \end{aligned}$$

$$(k)$$

$$\begin{aligned}4\frac{1}{2} &= 4 + \frac{1}{2} \\&= 4 + 0.5 \\&= 4.5\end{aligned}$$

2. Between which two whole numbers on the number line are the given numbers lie?

Which of these whole numbers is nearer the number?



(a) 0.8

(b) 5.1

(c) 2.6

(d) 6.4

(e) 9.1

(f) 4.9

Solutions:

(a) 0.8 lies between 0 and 1

0.8 is nearer to 1

(b) 5.1 lies between 5 and 6

5.1 is nearer to 5

(c) 2.6 lies between 2 and 3

2.6 is nearer to 3

(d) 6.4 lies between 6 and 7

6.4 is nearer to 6

(e) 9.1 lies between 9 and 10

9.1 is nearer to 9

(f) 4.9 lies between 4 and 5

4.9 is nearer to 5

3. Write as fractions in the lowest terms.

(a) 0.60

(b) 0.05

(c) 0.75

(d) 0.18

(e) 0.25

(f) 0.125

(g) 0.066

Solutions:

(a) $0.60 = 60 / 100$

$$= 6 / 10$$

$$= 3 / 5$$

(b) $0.05 = 5 / 100$

$$= 1 / 20$$

(c) $0.75 = 75 / 100$

$$= 3 / 4$$

(d) $0.18 = 18 / 100$

$$= 9 / 50$$

(e) $0.25 = 25 / 100$

$$= 1 / 4$$

(f) $0.125 = 125 / 1000$

$$= 1 / 8$$

(g) $0.066 = 66 / 1000$

$$= 33 / 500$$

4. Which is greater?

(a) 0.3 or 0.4

(b) 0.07 or 0.02

(c) 3 or 0.8

(d) 0.5 or 0.05

(e) 1.23 or 1.20

(f) 0.099 or 0.19

(g) 1.5 or 1.50

(h) 1.431 or 1.490

(i) 3.3 or 3.300

(j) 5.64 or 5.603

Solutions:

(a) 0.3 or 0.4

The whole parts for both numbers are the same. We know that the tenth part of 0.4 is greater than that of 0.3.

$$\therefore 0.4 > 0.3.$$

(b) 0.07 or 0.02

Both the numbers have the same parts up to the tenth place, but the hundredth part of 0.07 is greater than that of 0.02.

$$\therefore 0.07 > 0.02.$$

(c) 3 or 0.8

The whole part of 3 is greater than that of 0.8

$$\therefore 3 > 0.8$$

(d) 0.5 or 0.05

The whole parts for both numbers are the same. Here, the tenth part of 0.5 is greater than that of 0.05.

$$\therefore 0.5 > 0.05.$$

(e) 1.23 or 1.20

Here, both the numbers have the same parts up to the tenth place. The hundredth part of 1.23 is greater than that of 1.20.

$$\therefore 1.23 > 1.20.$$

(f) 0.099 or 0.19

The whole parts for both numbers are the same. Here, the tenth part of 0.19 is greater than that of 0.099.

$$\therefore 0.099 < 0.19.$$

(g) 1.5 or 1.50

We may find that both numbers have the same parts up to the tenth place. Here 1.5 have no digit at the hundredth place. It represents that this digit is 0, which is equal to the digit at the hundredth place of 1.50.

\therefore Both these numbers are equal.

(h) 1.431 or 1.490

Here, both the numbers have the same parts up to the tenth place, but the hundredth part of 1.490 is greater than that of 1.431.

$\therefore 1.431 < 1.490$.

(i) 3.3 or 3.300

Here, both numbers have the same parts up to the tenth place. There are no digits at the hundredth and thousandth place of 3.3. It represents that these numbers are 0, which is equal to the digits at the hundredth and thousandth place of 3.300.

\therefore Both these numbers are equal.

(j) 5.64 or 5.603

Here, both numbers have the same parts up to the tenth place, but the hundredth part of 5.64 is greater than that of 5.603

$\therefore 5.64 > 5.603$.

5. Find the sum in each of the following:

(a) $0.007 + 8.5 + 30.08$

(b) $15 + 0.632 + 13.8$

(c) $27.076 + 0.55 + 0.004$

(d) $25.65 + 9.005 + 3.7$

(e) $0.75 + 10.425 + 2$

(f) $280.69 + 25.2 + 38$

Solutions:

(a) Sum of $0.007 + 8.5 + 30.08$

0.007

8.500

+ 30.080

38.587

(b) Sum of $15 + 0.632 + 13.8$

15.000

0.632

+ 13.800

29.432

(c) Sum of $27.076 + 0.55 + 0.004$

27.076

0.550

+ 0.004

27.630

(d) Sum of $25.65 + 9.005 + 3.7$

25.650

9.005

+ 3.700

38.355

(e) Sum of $0.75 + 10.425 + 2$

0.750

10.425

+ 2.000

13.175

(f) Sum of $280.69 + 25.2 + 38$

280.69