

Estimating to the Nearest Thousands by Rounding Off

As numbers 1 to 499 are nearer to 0 than to 1000, therefore these numbers are rounded off to 0.

The numbers 501 to 999 are nearer to 1000 than to 0, therefore they are rounded off to 1000. Number 500 is rounded off as 1000.

Examples:

2872 → 3000, 64534 → 65000, 5673 → 6000, 18987 → 19000



Remember

Numbers can be rounded off by observing digits of the numbers only.

- To round off a number to the nearest 10, consider the ones digit. If the ones digit is 5 or more than 5, the ones digit becomes 0 and tens digit is increased by 1. If ones digit is less than 5, the ones digit becomes 0 and the rest of the digits remain unchanged.
- To round off a number to the nearest 100, consider the tens digit. If the tens digit is 5 or more than 5, the tens and ones digits become 0 and hundreds digit is increased by 1. If the tens digit is less than 5, the tens and ones digits become 0 and the rest of the digits remain unchanged.
- To round off a number to the nearest 1000, we consider the digit in the hundreds place. If the hundreds digit is 5 or more than 5, the hundreds, tens and ones digits become 0 and thousand digit is increased by 1. If the hundreds digit is less than 5, the hundreds, tens and ones digits become 0 and the rest of the digits remain unchanged.

Estimation of Sum or Difference

We can find the estimated sums (the answers to addition problems), and differences (the answers to subtraction problems). The first step in estimating a sum or a difference is to round off the numbers to the nearest tens, hundreds, thousands, etc. There are no rule where we have to round off up to tens, or hundreds or thousands.

It is our requirement that decides and helps in having the nearest approximation. Following examples will clear the concept of estimation of sum or difference.

Example 1. Estimate the sum.

- (i) $720 + 682$ (ii) $1480 + 1975$

Also compare with the actual sum.

Sol. (i) We round off to the nearest hundreds.

720 rounded to 700 and 682 rounded to 700

So, estimated sum = $700 + 700 = 1400$

Actual sum = $720 + 682 = 1402$

The estimated sum is less than the actual sum by 2.

(ii) We round off the given numbers to the nearest thousands

1480 rounded to 1000 and 1975 rounded to 2000

So, estimated sum = $1000 + 2000 = 3000$

Actual sum = $1480 + 1975 = 3455$

The estimated sum is 455 less than the actual sum.

Example 2. Estimate the difference.

- (i) $762 - 216$ (ii) $3967 - 1089$

Also compare with the actual difference.

Sol. (i) We round off the given numbers to the nearest hundreds.

762 rounded to 800 and 216 rounded to 200

So, estimated difference = $800 - 200 = 600$

Actual difference = $762 - 216 = 546$

The estimated difference is greater than the actual difference by 54.

(ii) We round off the given numbers to the nearest thousands.

3967 rounded to 4000 and 1089 rounded to 1000

So, estimated difference = $4000 - 1000 = 3000$

Actual difference = $3967 - 1089 = 2878$

The estimated difference is 122 greater than the actual difference.

To Estimate Product

We have general rule for estimating product.

Round off each factor (number) of multiplication of two numbers to the greatest place. Then multiply the rounded off factors (numbers).

For example, let us find the estimated product of 92×589

92 is rounded off to 90 (rounded off to the nearest tens) and 589 is rounded off to 600 (rounded off to the nearest hundreds).

The estimated product = $90 \times 600 = 54,000$



Remember

For estimating products,

1. Round 2- and 3-digit numbers to the nearest tens or hundreds. Do not round off one-digit number.
2. Multiply the non-zero digits.
3. Write the number of zeroes in the rounded numbers on the end of the answer.

For example: $8 \times 69 = ?$

As 8 is one-digit number, therefore, we do not round off it. Round off 69 to the nearest tens.

As the number in the ones place is greater than 5, round off it to 70.

Now $8 \times 70 = 560$.

USING BRACKETS

Brackets are most often used to create groups or clarify order that operations are to be done. In expressions consisting of more than one bracket, parenthesis () is used in the innermost part followed by braces { } and these two are covered by square [] brackets.

Thus, brackets are used to group numbers.

For example, $3[8 - 2(6 - 3)] = 3[8 - 2(3)] = 3[8 - 6] = 3[2] = 6$

and $2[1 + \{4(2 + 1) + 5\}] = 2[1 + \{4(3) + 5\}] = 2[1 + \{12 + 5\}] = 2[1 + 17] = 2[18] = 36$

So, first turn everything inside the brackets into a single number and then do operation outside which in above example is to multiply by 2.



Remember

1. There are four types of brackets in use generally.

$\underline{\quad}$ () { } []
Bar or vinculum Round brackets Curly brackets Square brackets

2. To simplify a problem having all the brackets, we first perform the operation under the bar, then in the small brackets, then in curly brackets and lastly in square brackets.

Expanding Brackets

Observe the following examples and see the use of brackets in calculation in numbers.

(i) $18 \times 305 = 18 \times (300 + 5)$
 $= 18 \times 300 + 18 \times 5 = 5400 + 90$

$$\begin{aligned}
 &= 5490 \\
 \text{(ii)} \quad 208 \times 203 &= (200 + 8) \times (200 + 3) \\
 &= (200 + 8) \times 200 + (200 + 8) \times 3 \\
 &= 200 \times 200 + 8 \times 200 + 200 \times 3 + 8 \times 3 \\
 &= 40000 + 1600 + 600 + 24 \\
 &= 42224
 \end{aligned}$$

ROMAN NUMERALS

Roman numerals are a system of numerical notations used by Romans. They are an additive and subtractive system in which letters are used to denote certain “Base” numbers and arbitrary numbers are then denoted using combinations of symbols. Base numbers and their corresponding value in Hindu-Arabic system are as follows:

I	V	X	L	C	D	M
1	5	10	50	100	500	1000

Some Roman numerals and their respective value in Hindu-Arabic system are given below:

I	II	III	IV	V	VI	VII	VIII	IX
1	2	3	4	5	6	7	8	9
X	XX	XXX	XL	L	LX	LXX	LXXX	XC
10	20	30	40	50	60	70	80	90
C	CC	CCC	CD	D	DC	DCC	DCCC	CM
100	200	300	400	500	600	700	800	900

Rules to Form Roman Numerals

We give some rules below to form Roman numerals.

Rule 1. When a symbol appears **after a larger (or equal)** symbol it is added

Examples: VII = 5 + 2 = 7, XIII = 10 + 3 = 13,
LXV = 50 + 10 + 5 = 65, LXX = 50 + 10 + 10 = 70

Rule 2. If a symbol appears **before a larger** symbol it is subtracted

Examples: IV = 5 - 1 = 4, IX = 10 - 1 = 9,
XL = 50 - 10 = 40

Rule 3. If a symbol is written between two symbols of greater value, its value is subtracted from the symbol on its right.

Examples: LIX = 50 + (10 - 1) = 59, DXC = 500 + (100 - 10) = 590



Remember

1. Do not repeat symbol more than three times in a row.

For example,

(a) VII = 7, VIII = 8 but VIII ≠ 9. (b) IX = 9, XLIV = 44 but XLIII ≠ 44.
(c) LXIV = 64 but LXIII ≠ 64.

2. V, L and D are never subtracted.

3. I can be subtracted from V and X only.

4. X can be subtracted from L, M and C only.

5. C can be subtracted from D and M only.

6. Number greater than 1000 are formed by placing a dash over the symbol meaning “times 1,000” but these are not commonly used.

$\bar{V} = 5000$; $\bar{C} = 1,00,000$; $\bar{X} = 10,000$; $\bar{D} = 500,000$; $\bar{L} = 50,000$; $\bar{M} = 1,000,000$.



Solved Examples

1. Estimate

- (i) $730 + 998$ (ii) $796 - 314$ (iii) $12,904 + 2,888$ (iv) $28,292 - 21,496$

Sol. (i) $730 + 998$

By rounding off to hundreds, 730 rounds off to 700 and 998 rounds off to 1000.

$$\begin{array}{r} \text{So, estimated sum} = 700 + 1000 = 1700 \\ \begin{array}{r} 700 \\ + 1000 \\ \hline 1700 \end{array} \end{array}$$

(ii) $796 - 314$

By rounding off to hundreds, 796 rounds off to 800 and 314 rounds off to 300.

$$\begin{array}{r} \text{So, estimated difference} = 800 - 300 = 500 \\ \begin{array}{r} 800 \\ - 300 \\ \hline 500 \end{array} \end{array}$$

(iii) $12,904 + 2,888$

By rounding off to thousands, 12904 rounds off to 13000 and 2888 rounds off to 3000.

$$\begin{array}{r} \text{So, estimated sum} = 13000 + 3000 = 16000 \\ \begin{array}{r} 13000 \\ + 3000 \\ \hline 16000 \end{array} \end{array}$$

(iv) $28,292 - 21,496$

By rounding off to nearest thousands, 28292 rounds off to 28000 and 21496 rounds off to 21000.

$$\begin{array}{r} \text{So, estimated difference} = 28000 - 21000 = 7000 \\ \begin{array}{r} 28000 \\ - 21000 \\ \hline 7000 \end{array} \end{array}$$

2. Give a rough estimate (by rounding off to nearest hundreds) and also a closer estimate (by rounding off to nearest tens).

(i) $439 + 334 + 4,317$

(ii) $1,08,734 - 47,599$

(iii) $8325 - 491$

(iv) $4,89,348 - 48,365$

Sol. (i) $439 + 334 + 4,317$

Rounding off to nearest hundreds, 439, 334 and 4317 may be rounded off to 400, 300 and 4300 respectively.

$$\begin{array}{r} \text{So, } 400 + 300 + 4300 = 5000 \\ \begin{array}{r} 400 \\ 300 \\ + 4300 \\ \hline 5000 \end{array} \end{array}$$

Rounding off to nearest tens, 439, 334 and 4317 may be rounded off to 440, 330 and 4320 respectively.

$$\begin{array}{r} \text{So, } 440 + 330 + 4320 = 5090 \\ \begin{array}{r} 440 \\ 330 \\ + 4320 \\ \hline 5090 \end{array} \end{array}$$

(ii) $1,08,734 - 47,599$

Rounding off to the nearest hundreds, 1,08,734 and 47,599 may be rounded off to 1,08,700 and 47,600 respectively.

$$\begin{array}{r} \text{So, } 108700 - 47600 = 61100 \\ 108700 \\ - 47600 \\ \hline 61100 \end{array}$$

Rounding off to the nearest tens, 1,08,734 and 47,599 may be rounded off to 1,08,730 and 47,600 respectively.

$$\begin{array}{r} \text{So, } 108730 - 47600 = 61130 \\ 108730 \\ - 47600 \\ \hline 61130 \end{array}$$

(iii) $8325 - 491$

Rounding off to the nearest hundreds, 8325 may be rounded off to 8300 and 491 may be rounded off to 500.

$$\begin{array}{r} \text{So, } 8300 - 500 = 7800 \\ 8300 \\ - 500 \\ \hline 7800 \end{array}$$

Rounding off to the nearest tens, 8325 may be rounded off to 8330 and 491 may be rounded off 490.

$$\begin{array}{r} \text{So, } 8330 - 490 = 7840 \\ 8330 \\ - 490 \\ \hline 7840 \end{array}$$

(iv) $4,89,348 - 48,365$

Rounding off to the hundreds, 489348 may be rounded off to 489300 and 48365 may be rounded off 48400.

$$\begin{array}{r} \text{So, } 489300 - 48400 = 440900 \\ 489300 \\ - 48400 \\ \hline 440900 \end{array}$$

Rounding off to the nearest tens, 489348 may rounded off to 489350 and 48365 may be rounded off 48370.

$$\begin{array}{r} \text{So, } 489350 - 48370 = 440980 \\ 489350 \\ - 48370 \\ \hline 440980 \end{array}$$

3. Estimate the following products using general rule.

(i) 578×161 (ii) 5281×3491 (iii) 1291×592 (iv) 9250×29

Sol. (i) We have 578×161

Rounding off by general rule, 578 and 161 may be rounded off to 600 and 200 respectively.

$$\begin{array}{r} \text{Thus,} \\ 600 \\ \times 200 \\ \hline 120000 \end{array}$$

(ii) We have 5281×3491

Rounding off by general rule, 5281 and 3491 may be rounded off to 5000 and 3000 respectively.

$$\begin{array}{r} \text{Thus,} \\ 5000 \\ \times 3000 \\ \hline 15000000 \end{array}$$

(iii) We have 1291×592

Rounding off by general rule, 1291 and 592 may be rounded off to 1000 and 600 respectively.

Thus,

$$\begin{array}{r} 1000 \\ \times 600 \\ \hline 600000 \end{array}$$

(iv) We have 9250×29

Rounding off by general rule, 9250 and 29 may be rounded off to 9000 and 30 respectively.

Thus,

$$\begin{array}{r} 9000 \\ \times 30 \\ \hline 270000 \end{array}$$

4. Write the expression for each of the following using brackets:

(i) Four multiplied by the sum of nine and two.

(ii) Divide the difference of eighteen and six by four.

(iii) Forty-five divided by three times the sum of three and two.

Sol. (i) Sum of nine and two = $9 + 2$

So, four multiplied by the sum of nine and two = $4 \times (9 + 2)$.

(ii) Difference of eighteen and six = $18 - 6$

So, division of $18 - 6$ and 4 = $(18 - 6) \div 4$.

(iii) The required expression is $45 \div \{3(3 + 2)\}$.

5. Simplify the following:

Sol. (i) $16 + 3(91 \div 7)$ (ii) $\{5(8 + 2) - 5\} \times 2$ (iii) $80 + [190 - \{8 \times 9 + (110 - 50)\}]$

$$\begin{aligned} 16 + 3(91 \div 7) &= 16 + 3 \times 13 \\ &= 16 + 39 \\ &= 55 \end{aligned}$$

$$[\because 91 \div 7 = 13]$$

$$[\because 3 \times 13 = 39]$$

(ii) $\{5(8 + 2) - 5\} \times 2 = \{5 \times 10 - 5\} \times 2$ $[\because 8 + 2 = 10]$

$$= \{50 - 5\} \times 2$$

$$[\because 5 \times 10 = 50]$$

$$= 45 \times 2$$

$$[\because 50 - 5 = 45]$$

$$= 90$$

(iii) $80 + [190 - \{8 \times 9 + (110 - 50)\}] = 80 + [190 - \{8 \times 9 + 60\}]$ $[\because 110 - 50 = 60]$

$$= 80 + [190 - \{72 + 60\}]$$

$$[\because 8 \times 9 = 72]$$

$$= 80 + [190 - 132]$$

$$[\because 72 + 60 = 132]$$

$$= 80 + 58$$

$$= 138$$

6. Evaluate 104×105 using brackets.

Sol. $104 \times 105 = (100 + 4) \times (100 + 5)$

$$= (100 + 4) \times 100 + (100 + 4) \times 5$$

$$= 100 \times 100 + 4 \times 100 + 100 \times 5 + 4 \times 5$$

$$= 10,000 + 400 + 500 + 20 = 10,000 + 900 + 20$$

$$= 10,920$$

7. Write the Roman numerals for the following:

(i) 47

(ii) 84

(iii) 96

(iv) 178

(v) 548

(vi) 1132

Sol. (i) 47 = XLVII

(ii) 84 = LXXXIV

(iii) 96 = XCVI

(iv) 178 = CLXXVIII

(v) 548 = DXLVIII

(vi) 1132 = MCXXXII



Exercise 1.3

- Estimate each of the following using general rule
 (i) $640 + 892$ (ii) $586 - 313$ (iii) $16,805 + 2,666$ (iv) $35,394 - 31,598$
 Make more such examples of addition, subtraction and estimation of their outcomes.
- Give a rough estimate (by rounding off to the nearest hundreds) and also a closer estimate (by rounding off to the nearest tens)
 (i) $438 + 332 + 4,215$ (ii) $2,095,532 - 58,296$ (iii) $8534 - 763$ (iv) $4,78,539 - 47,556$
 Make five more such examples.
- Estimate the following products using general rule.
 (i) 673×172 (ii) 5381×3691 (iii) 1493×793 (iv) 8950×36
- Evaluate by using brackets.
 (i) 13×108 (ii) 107×109
- Write the Roman numerals for each of the following.
 (i) 79 (ii) 96 (iii) 163 (iv) 378
 (v) 546 (vi) 2089



Miscellaneous Solved Examples

There are four options (Q1 and Q10) out of which only one is correct. Choose the correct option.

- The product of the place values of two 2's in 428721 is
 (a) 4 (b) 40000 (c) 400000 (d) 428721

Sol. One 2 is at tens place value

So its place value = $2 \times 10 = 20$

Other 2 is at ten thousand place

Its place value = $2 \times 10,000 = 20,000$

So, their product = $20 \times 20,000 = 4,00,000$.

Hence, (c) is the correct answer.

- $3 \times 10000 + 7 \times 1000 + 9 \times 100 + 0 \times 10 + 4$ is the same as
 (a) 3794 (b) 37940 (c) 37904 (d) 379409

Sol. $3 \times 10000 + 7 \times 1000 + 9 \times 100 + 0 \times 10 + 4$

$$= 30000 + 7000 + 900 + 0 + 4 = 37904$$

Hence, (c) is the correct answer.

- If 1 is added to the greatest 7 digit number it will be equal to
 (a) 10 thousand (b) 1 lakh (c) 10 lakh (d) 1 crore

Sol. The greatest 7-digit number = 9999999

When 1 is added to 9999999, we have

$$9999999 + 1 = 10000000 = 1 \text{ crore}$$

Hence, (d) is the correct answer.

- The expanded form of the number 9578 is
 (a) $9 \times 10000 + 5 \times 1000 + 7 \times 10 + 8 \times 1$
 (b) $9 \times 1000 + 5 \times 100 + 7 \times 10 + 8 \times 1$
 (c) $9 \times 10000 + 57 \times 10 + 8 \times 1$
 (d) $9 \times 100 + 5 \times 100 + 7 \times 10 + 8 \times 1$

Sol. Writing each digit of 9578 as its place value, we get

$$9578 = 9 \times 1000 + 5 \times 100 + 7 \times 10 + 8 \times 1$$

Hence, (b) is the correct answer.

5. When rounded off to nearest thousands, the number 85642 is

- (a) 65600 (b) 85700 (c) 85000 (d) 86000

Sol. When rounded off to nearest thousand the number 85642 is 86000.

Hence, (d) is the correct answer.

6. The largest 4-digit number, using any one digit twice from digits 5, 9, 2 and 6 is

- (a) 9652 (b) 9562 (c) 9659 (d) 9965

Sol. The given digits are 5, 9, 2 and 6. The largest 4-digit number using the digit 9 twice is 9965.

Hence, (d) is the correct answer.

7. In Indian system of numeration, the number 58695376 is writing as

- (a) 58,69,53,76 (b) 58,695,376 (c) 5,86,95,376 (d) 586,95,376

Sol. In Indian system of numeration, the number 58695376 is written as 5,86,95,376

Hence, (c) is the correct answer.

8. One million is equal to

- (a) 1 lakh (b) 10 lakh (c) 1 crore (d) 10 crore

Sol. One million = 10 lakh

Hence, (b) is the correct answer.

9. Which of the following numbers in Roman numerals is incorrect?

- (a) LXXX (b) LXX (c) LX (d) LLX

Sol. As the symbols V, L and D are not repeated in Roman Numerals, so LLX is incorrect answer.

Hence, (d) is the correct answer.

10. The smallest 4-digit number having three different digits is

- (a) 102 (b) 1012 (c) 1020 (d) 1002

Sol. The smallest 4-digit number having three different digits is 1002.

Hence, (d) is the correct answer.

11. Fill in the blanks.

- (i) 10 million = crore (ii) 10 lakh = million
(iii) 1 metre = millimetres (iv) 1 centimetre = millimetres
(v) 1 kilometre = millimetres (vi) 1 gram = milligrams
(vii) 1 litre = millilitres (viii) 1 kilogram = milligrams
(ix) 100 thousands = lakh.
(x) In Roman Numeration, the symbol X can be subtracted from, M and C only.
(xi) The number 66 in Roman numerals is

Sol. (i) 1 (ii) 1 (iii) 1000 (iv) 10 (v) 1000000
(vi) 1000 (vii) 1000 (viii) 1000000 (ix) 1 lakh (x) L
(xi) LXVI

12. State whether the following statements are true (T) or false (F).

- (i) In Roman numeration, a symbol is not repeated more than three times.
(ii) In Roman numeration, if a symbol is repeated, its value is multiplied as many times as it occurs.
(iii) XXIX = 31.
(iv) The number LIV is greater than LVI.
(v) The numbers 4578, 4587, 5478, 5487 are in descending order.
(vi) The largest six-digit telephone number that can be formed by using digits 5, 3, 4, 7, 0, 8 only once is 875403.

- Sol.** (i) True statement because it is a general rule.
(ii) False, because when symbol is repeated its value is added in Roman numeration.
(iii) False, because $XXIX = 10 + 10 + 9 = 29$
(iv) False, because $LIV = 50 + 4 = 54$, $LVI = 50 + 6$ and $56 > 54$, so $LVI > LIV$.
(v) False, because in descending order, the numbers are arranged from largest to smallest.
So 5487, 5478, 4587, 4578 are in descending order.
(vi) False, the largest six-digit number is 875430.

13. Write in expanded form:

- (i) 74836 (ii) 574021 (iii) 8907010

- Sol.** (i) $74836 = 7 \times 10000 + 4 \times 1000 + 8 \times 100 + 3 \times 10 + 6 \times 1$
(ii) $574021 = 5 \times 100000 + 7 \times 10000 + 4 \times 1000 + 0 \times 100 + 2 \times 10 + 1 \times 1$
(iii) $8907010 = 8 \times 1000000 + 9 \times 100000 + 0 \times 10000 + 7 \times 1000 + 0 \times 100 + 1 \times 10 + 0 \times 1$

14. The diameter of Jupiter is 142800000 metre. Insert commas suitably and write diameter according to International System of Numeration.

Sol. The diameter of Jupiter according to International System of Numeration is 142,800,000.

15. Find the difference between the largest number of seven digits and the smallest number of eight digits.

Sol. Required difference = $10000000 - 9999999 = 1$.



Exercise 1.4 (Miscellaneous)

There are four options (Q1 to Q8) out of which only one is correct. Choose the correct option.

- Difference of face value and place value of 8 in the number 98761 is
(a) 7992 (b) 79992 (c) 8753 (d) 98753
- Predecessor of two million five hundred ten thousand two hundred is
(a) 2510201 (b) 2510200 (c) 2510199 (d) 2510099
- Number of five digit numbers in all are
(a) 99999 (b) 99990 (c) 90001 (d) 90000
- Smallest 7-digit number using the following digits 1, 3, 4, 5, 0, 7, 6 is
(a) 10,34,567 (b) 13,45,670 (c) 10,43,567 (d) 10,34,576
- If cost of one fridge is ₹ 38,500, then the cost of 15 fridges is
(a) ₹ 57,750 (b) ₹ 5,77,500 (c) ₹ 5,70,500 (d) None of these
- The capacity of a bucket is 35 l. It has 2500 ml of milk. How much more milk can it hold?
(a) 33 l 500 ml (b) 32 l 500 ml (c) 10 l (d) none of these
- Roman numeral for 345 is
(a) CCCXLV (b) CCCLXV (c) CCCVLX (d) CCCVXL
- Hindu-Arabic numeral for XCII – LXV is
(a) 27 (b) 37 (c) 47 (d) 57
- Fill in the blanks.
(i) (a) 1 metre = centimetres. (b) 1 millimetre = centimetres.
(c) 1 kilometre = metres.
(ii) (a) 1 kilogram = grams. (b) 1 litre = millilitres.
(c) 1 millilitre = kilolitres.
(iii) Cost of a washing machine is ₹ 67824. Rounded off to the nearest thousand is
(iv) Roman numeral for DCCCXLV
(v) Standard unit of capacity is
- State whether the following statements are true or false.

- (i) Hindu-Arabic numeral for MCCL is 750.
 - (ii) Expanded form of 6205 is $6 \times 1000 + 2 \times 100 + 5 \times 1$
 - (iii) Estimated sum of 3425 and 4688 rounded off to hundreds is 8000.
 - (iv) Mathematical expression for six multiplied by the difference of 8 and 4 is $6 \times 8 - 4$.
 - (v) Roman numeral for 97 is CXVII.
 - (vi) Value of the expression $55 + 5 \times (18 - 7)$ is zero.
 - (vii) Successor of the largest 6-digit number is 1 million.
 - (viii) The sum of place value and face value of 5 in 62578 is 1000.
11. Using the digits 1, 2, 3, 5 form numbers which when rounded off to nearest hundreds give 5300.
 12. Write the greatest 4-digit number using different digits with tens digit smallest natural number and unit digit is five times the tens digit.
 13. Find 8 times the difference of place values of 5's in 450253.
 14. What must be added to the largest 4-digit number to get smallest number of five different digits formed by 1, 2, 0, 3, 4?
 15. Express sum of Roman numerals XL and CXX in roman numeral.

Value Based Questions

16. Capacity of a tank is $500,000 \text{ cm}^3$. The family used up 110 l of water in cooking, drinking and bathing. 100 l of water in washing car and 100 l of water in washing terrace. What is remaining quantity of water in the tank? What will you like to suggest to the family regarding use of water?
17. Soni made 25 Vandanvaar using cloth of length 150 cm each whereas Jyanti made same using paper. What was total length of paper or cloth used? What would you like to suggest to Jyanti and give reason?



Points to Remember

1. Numbers help us in counting objects and representing them through numerals.
2. **Comparing large numbers:** We have the following rules for comparing large numbers.
 - (i) The greater the number of digits the greater is the number.
 - (ii) If two numbers have the same number of digits the number with bigger digit on the extreme left place is greater.
 - (iii) If the left most digits are the same, we compare the next digit to the right and keep doing this until the digits are different.
3. **International System of Numeration:** The International system is followed by most of the countries of the world. In the International system of Numeration, we use ones, thousands, millions and billions as periods. In this system, a number is split up into groups, or periods.
 - The first period consists of ones, tens and hundreds places.
 - The second period consists of thousands, ten thousands, hundred thousands places.
 - The third period consists of millions, ten millions and hundred millions places.
 - The fourth period consists of billions, ten billions and hundred billions places.
4. Conversion of unit helps us to solve problem. Note that, 1 kilogram is 1,000 times larger than one gram. So, 1 kilogram = 1,000 grams.
Similarly, 1 centimetre is 100 times smaller than one metre. So, 1 metre = 100 centimetres.
5. **Estimation and Rounding Off:** Estimating is an important part of mathematics. Get in the habit of estimating amount of money, duration of time, distances and many other physical quantities.
Very simple form of estimation is rounding off. Rounding off is the key skill you need to quickly estimate a number. You can make a large number simpler by 'rounding' or expressing in terms of the nearest ones, tens, hundreds.
6. **Roman Numerals:** Roman numerals are a system of numerical notations used by Romans.
7. **Rules to form Roman numerals.**
 - (i) Repetition of a symbol in a Roman numeral means addition.
 - (ii) A smaller numeral written to the right of a larger numeral is always added to the larger numeral.
 - (iii) A smaller numeral written to the left of a larger one is always subtracted from the larger numeral.
 - (iv) *When a smaller numeral is placed between two larger numerals, it is always subtracted from the larger numeral immediately following it.*

CHAPTER TEST

I. Choose the correct answers.

- $5 \times 10000 + 8 \times 1000 + 6 \times 100 + 0 \times 10 + 5$ is same as
(a) 5865 (b) 58605 (c) 58650 (d) 586506
- In Indian System of Numeration, the number 76584732 is written as
(a) 7,65,84,732 (b) 76,58,47,32 (c) 76,584,732 (d) 765,84,732
- The largest 4-digit number, using any one digit twice of 3, 8, 9, 7 is
(a) 9873 (b) 9783 (c) 9899 (d) 9987
- 5 million is equal to
(a) 5 lakh (b) 50 lakh (c) 5 crore (d) 50 crore
- The largest 6-digit number having three different digits is
(a) 998877 (b) 989799 (c) 999987 (d) 9879879
- The greatest number which on rounding off to the nearest thousands gives 8000 is
(a) 8889 (b) 8499 (c) 8899 (d) 8999
- Roman numeral for 900 is
(a) XC (b) MC (c) CM (d) LM
- Roman numeral for 800 is
(a) CCM (b) MCC (c) XXXM (d) DCCC
- What is the Roman numeral for 1984?
(a) MCMLXXXIV (b) MMCLXXXIV (c) MLCMXXXIV (d) CMMLXXXIV

II. Fill in the blanks:

- (i) 1754 to the nearest thousand is (ii) 1754 to the nearest hundred is
(iii) \bar{L} represents the number (iv) CCC represents the number
(v) One million = lakhs. (vi) One billion = lakhs.

III. State True or False for each of the following statements.

- (i) The product of the place values of two 3s in 435638 is 9000000.
(ii) $8 \times 10000 + 0 \times 1000 + 4 \times 100 + 0 \times 100 + 9$ is same as 80409.
(iii) The number 75864 rounded off to the nearest hundred is 75800.
(iv) DLXX is greater than MLXX. (v) 10 millions = 1 crore.

IV. Do as directed.

- (i) 10 crores is equal to how many millions?
(ii) 100 lakh is equal to how many millions?
- Insert commas suitably and write the names according to International system of numeration.
(i) 85946172 (ii) 473080579
- Write the following numbers in figures.
(i) Seven million nine hundred eight thousand four hundred five.
(ii) Two hundred eighty-seven million five thousand seven hundred eighteen.
- (i) Rewrite in Indian place value system:
Six million nine hundred seven thousand four hundred eighteen.
(ii) Rewrite in International place value system:
Sixteen crore thirty-five lakh seven hundred ninety-five.
(iii) Rewrite in Indian System of Numeration the number 783946675 using commas.
(iv) Write 1950 in Roman numerals.
- (i) Estimate $820 + 997$ using general rule.
(ii) Estimate $13908 + 2875$ using general rule.
(iii) Estimate $29396 - 23479$ using general rule.
(iv) Give a rough estimate (by rounding off to nearest hundreds): $538 + 434 + 5318$
(v) Estimate the following product using general rule: 9350×38 .