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2020-21 April-May

CLASS- IV (math. steps)
Sub- math (book - math steps) | G. Choudhary

ROMAN NUMERALS -

Hindu-Arabic numerals in which the digits -
0, 1, 2, 3, 4, 5, 6, 7, 8 and 9 are used.

Roman numerals are formed by using the following symbols

I \rightarrow 1

V \rightarrow 5

X \rightarrow 10

L \rightarrow 50

C \rightarrow 100

D \rightarrow 500

M \rightarrow 1000 (Symbols (-) = Thousands)

① RULE \rightarrow (i) No Roman numeral is repeated consecutively more than three times

(ii) V, L, D are ^{not} repeated

Such that 20 \rightarrow XX

30 \rightarrow XXX

② RULE \rightarrow When a Roman numeral is placed after another of greater value, the value of the resulting numeral is equal to the sum of the numerals

for ex. VI \rightarrow 5 + 1 = 6

VIII \rightarrow 5 + 3 = 8

③ Rule \rightarrow When a Roman numeral is placed before another of greater value, the value of the resulting number is equal to the difference of the numerals

for ex. IV \rightarrow 5 - 1 = 4

IX \rightarrow 10 - 1 = 9

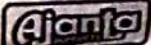
④ This symbol (-) are used

5000 \rightarrow $\overline{\text{V}}$ (five bar)

3000 \rightarrow MMM (Repeated in three times)

4000 \rightarrow $\overline{\text{IV}}$

2000 \rightarrow MM (Repeat in two times)

6000 \rightarrow $\overline{\text{VI}}$ (Six bar)  officer

③ Complete the following

(a) \underline{XXXIII} , \underline{XXXIV} , \underline{XXXV} , \underline{XXXVI} , \underline{XXXVII} , $\underline{XXXVIII}$
 \underline{XXXIX} , \underline{XL}

(b) \underline{XXXIX} , \underline{XL} , \underline{XLI} , \underline{XLII} , \underline{XLIII} , \underline{XLIV} , \underline{XLV} , \underline{XLVI}

④ Fill in with ">" or "<"

(a) XIX XXI

(d) XXXVII XLVI

(f) XLIX XL

(6) Write the Roman numerals in Hindu-Arabic notation and add answers in Roman numerals

(a) XI and XXXVI

$$XI + XXXVI \rightarrow XLVII$$

$$11 + 36 \rightarrow 47 \rightarrow XLVII$$

7) Write the answers in Roman numerals

(a) $XXX - XXIV \rightarrow VI$

(b) $L - XL \rightarrow X$

(c) $XLIV + XI \rightarrow LV$

⑨ Arrange the numbers in Roman numerals in ascending order

(a) XXI, L, XXXI, XLI, XLV

Ans: XXI < XXXI < XLI < XLV < L

⑩ Write in descending order

(a) XXIII, XLVIII, XXXIII, XLIV, XLVII

Sol: XLVIII > XLVII > XLIV > XXXIII > XXIII

How to compare two numbers

Step I :- 18265 and 4268

First 18265 have five-digit number
and 2nd 4268 is four-digit number so
18265 is greater than 4268

therefore $18265 > 4268$

Step II :- 8965 and 7876

Both the numbers are four-digit. So we
compare the first-digits from the left -
consecutively

$$8 < 7$$

therefore $8965 > 7876$

Exercise - 3

④ Write the numerals of the following numbers

7 lakh and twenty five.
sol: 7,40,25

⑤ Express the following numbers in words.

① 70,98,095

sol: Seventy lakh, Ninety-eight thousand and
Ninety-five

② Write the number 207005 in words and
reversing the order of the digits in 207005

sol: ✓ Two lakh, seven thousand and five

✓ Five lakh, seven hundred and two.
(500702)

⑬ Write the numbers keeping gaps between
the periods (or blocks)

① 5712 → 5 7 12

② 129910 → 12 9 910

⑭ Using the International place value chart. Write the
number names and also write them with gaps.

① 3650201 → Three million, Six hundred fifty
thousand, two hundred and one

3 650 201 Ans

Large Numbers

the larger numbers which have more than four digits, such that 1000, 1200, 14000 etc.

(A) the largest one-digit No = 9

" " two " " = 99

" " three " " = 999

" " four " " = 9999

the largest five-digit number = 99999

(B) the smallest one-digit number = 1 or 0

" " two " " = 10

" " three " " = 100

" " four " " = 1000

the smallest five-digit No = 10000

// Common system of Notation of numbers

Crores	T. L.	Lakhs	T. Th.	Thousands	Hundreds	Tens	Ones
--------	-------	-------	--------	-----------	----------	------	------

Indian place value chart

Crores		Lakhs		Thousands			Ones	
T. Crores	Crores	T. L.	Lakhs	T. Th.	Thousands	Hundreds	Tens	Ones

the first block from the right will be three compartment and the rest two compartments.

for ex. 3123456 → 31, 23, 456 or 31 23 456

Block : →

31	23	456
----	----	-----

INTERNATIONAL PLACE VALUE CHART

Billions			millions			Thousands			Ones		
H. B.	T. B.	Billions	H. M.	T. milli	Million	H. Th.	T. Th.	Thousands	Hundreds	Tens	Ones

this place value chart is divided into three blocks of three places each.

for ex. 124634965891 → 124, 634, 965, 891

or 124 634 965 891

Block 1 -

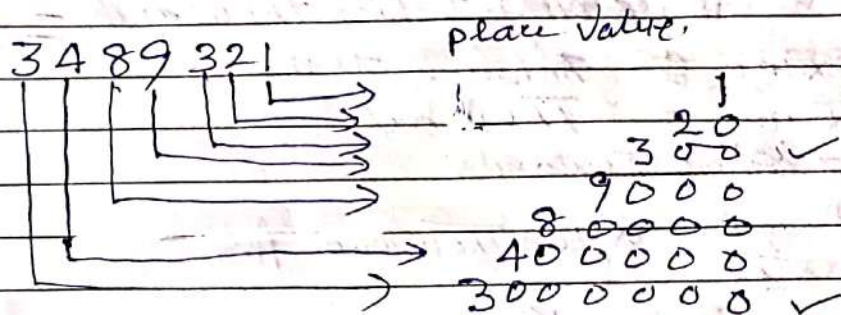
1	2	4	6	3	4	9	6	5
---	---	---	---	---	---	---	---	---

Place Value of digits

05

Take the number 3489321

There are seven digits in the number. The same digit 3 is at two different places. Digits get value of 3 to their places in different-
different number. So the place value



Exercise - 4

① Fill in the blanks

① the place value of 6 in 647312 is 600000
↓ → 600000

② Fill in the blanks

① 78145 = 7 ten thousands + 8 thousands + 1 hundreds
+ 4 tens + 5 ones

③ ① How many hundreds make a lakh?

Sol: - $\frac{100000}{100} = 1000$ hundreds Ans -

② How many tens make a thousand?

Sol: - $\frac{1000}{10} = 100$ tens. Ans

③ Read the number 45062 in hundreds, tens and ones

Sol: - 450 hundred, 6 tens, 2 ones

④ Read the number 705824 in thousands, hundreds, tens and ones.

Sol. Seven hundred five thousands eight hundreds
two tens and four ones

9) fill in the blanks.

(a) 4 thousands + 8 thousands = 1 tenthousand 2 thousands

Sol: - $4 + 8 = 12 \text{ Th}$
 $= 1 \text{ ten Th} + 2 \text{ Th}$

(c) 5 ten Thousands + 3 ten thousands = 8 ten thousand

Sol: - $5 \text{ ten} + 3 \text{ ten} = 8 \text{ ten}$

Total = 8 ten thousands
 $=$ 8 ten thousand Ans

13) fill in the blanks.

(a) The successor of 78 787 is $78787 + 1 = 78788$

(b) The predecessor of 87 876 is $87876 - 1 = 87875$ Ans

16) (a) Write all the possible numbers of three digits using 2, 5 and 1

Sol: - 125, 152, 251, 215, 512, 521 Ans

17) (a) Write the greatest number of 4 digits using 1, 0, 9 and 2

Sol: - 9210 Ans

18) (a) Write the least number of 4 digits using 8, 7, 6 and 5

Sol: - 5678 Ans

Addition of Numbers

07

Exercise - 5

(6) Add. T.Th H.T.O.

$$\begin{array}{r} 16975 \\ + 64806 \\ \hline 81781 \end{array}$$

Solution

Step 1: - Add in the column of ones
 $5+6=11$

Write 1 in the ones place and carry 1 to tens place

Step-2: - Add in the column of tens

$7+0+1=8$, write 8 in the tens place. No carry

Step 3: - Add in the column of hundred

$9+8=17$, write 7 in the hundred place and carry 1 to thousands place.

Step 4: - Add in the column of thousands

$6+4+1=11$, write 1 in the thousand place and carry 1 to ten thousand place

Step-5: Add in the column of T.Th
 $1+6+1=8$, write 8 in the T. Thousands place

(11) fill in the blanks with correct digits -

$$\begin{array}{r} 36 \boxed{3} 12 \\ + \boxed{4} 34 \boxed{2} 5 \\ + 1123 \boxed{1} \\ \hline 90968 \end{array}$$

Solution: -

Step 1: -

$$2+5+\boxed{1}=8$$

NO carry

Step 2: -

$$1+\boxed{2}+3=6$$

NO carry

Step-3: -

$$\boxed{3}+4+2=9$$

NO carry

Step 4: -

$$6+3+1=10$$

write 0

Step-5: - and 1 carry over
 $3+\boxed{4}+1+1=9$, write 9 in T.Th place

Word problems

08

Exercise- 6

①

(a) What number is 748 more than 66443?

$$\begin{array}{r} \text{Sol: - } 66443 \\ + \quad 748 \\ \hline 67191 \quad \text{Ans.} \end{array}$$

(b) What number exceeds 172569 by 1526?

$$\begin{array}{r} \text{Sol: - } 172569 \\ + \quad 1526 \\ \hline 174095 \quad \text{Ans} \end{array}$$

(c) What is the number from which 1234 must be subtracted to get 12345?

Sol: -

$$\begin{array}{r} \text{The number} = 12345 \\ + \quad 1234 \\ \hline 13579 \quad \text{Ans} \end{array}$$

(2) (a) Add the largest four digit number and smallest five digit number

$$\begin{array}{r} \text{Sol: Largest four digit No} = 9999 \\ \text{Smallest five digit No} = +10000 \\ \hline 19999 \quad \text{Ans} \end{array}$$

(3) Appears in the examination

$$\begin{array}{r} \text{Sol: - boys} = 485178 \\ \text{girls} \quad + 196997 \\ \hline \end{array}$$

Total students = 682175 Ans

(4) A man bought a plot of land

$$\begin{array}{r} \text{for Rs } 563498 \\ \text{building constructed for Rs } + 876097 \\ \hline \end{array}$$

Total cost = Rs 1439595

Ans

SUBTRACTION OF NUMBERS

Subtraction 6345 from 9488

$$\begin{array}{r} 9488 \rightarrow \text{minuend} \\ - 6345 \rightarrow \text{subtrahend} \\ \hline 3143 \rightarrow \text{difference} \end{array}$$

Minuend \rightarrow The number from which another number is to be subtracted is called the minuend.

In above ex. 9488 is the minuend.
Subtrahend: - The number which is to be subtracted is called the subtrahend.

In the above ex. 6345 is the subtrahend.
Difference: - When the subtrahend is subtracted from the minuend, the end result is called the difference.

In the above example 3143 is the difference.

Subtraction of Zero: -

If zero is subtracted from a number, the difference is the number itself.

for ex: $6543 - 0 = 6543$

Subtraction with borrowing (हासिल, उधार)

If minuend ones is less than subtrahend ones then ^{take} borrow in the left place consecutively.

$$\begin{array}{r} 7,15,3,13 \\ 8543 \rightarrow \text{minuend} \\ - 6734 \rightarrow \text{subtrahend} \\ \hline 1809 \rightarrow \text{difference} \end{array} \quad \underline{\underline{3 \angle A}}$$

Exercise - 7

④ (a) If the minuend = 78954 and
 Subtrahend = 11223, find difference

Sol.

$$\begin{array}{r} 78954 \\ - 11223 \\ \hline 67731 \end{array} \text{ Ans}$$

⑤ (b) Subtrahend = 22244 and
 Minuend = 468967 find difference

Sol.

$$\begin{array}{r} 468967 \\ - 22244 \\ \hline 246723 \end{array} \rightarrow \text{difference}$$

⑥ Fill in the blanks

①

$$\begin{array}{r} 45678 \\ - \boxed{3} \boxed{5} \boxed{2} \boxed{2} \boxed{2} \\ \hline 10456 \end{array} \text{ Ans}$$

⑦ Arrange in columns and subtract

①

$$\begin{array}{r} 61312111 \\ 74321 \\ - 35648 \\ \hline 38673 \end{array}$$

Solution $1 < 8$

- (i) Borrow 1 ten from 2 tens
 1 ten = 10 ones
 10 ones + 1 ones = 11 ones
 11 ones - 8 ones = 3 ones

② $1 < 4$, Then borrow 1 hundred from 3 hundreds

We get 3 hundreds - 1 hundred = 2 hundreds

1 hundred = 10 tens

∴ 10 tens + 1 ten = 11 tens

∴ 11 tens - 4 tens = 7 tens.

(iii)

2 hundred < 6 hundred.

Borrow 1 thousand from 4 thousand

4 th - 1 th = 3 Th

1 thousand = 10 hundred

10 hundred + 2 hundred = 12 hundred

∴ 12 hundred - 6 hundred = 6 hundred

(iv)

3 < 5

Borrow 1 ten thousand from 7 ten thousand

We get 7 ten th - 1 ten thousand = 6 ten thousand

1 ten thousand = 10 thousand

∴ 10 thousand + 3 thousand = 13 thousand

∴ 13 thousand - 5 thousand

= 8 thousand.

(v) 6 > 3

∴ 6 - 3 = 3

9) a) Subtract 76765 from 94320

94320 > 76765

$$\begin{array}{r}
 94320 \\
 - 76765 \\
 \hline
 17555
 \end{array}$$

10) a) Minuend = 93855

Subtrahend = 46946

difference = ?

sol.

$$\begin{array}{r}
 93855 \\
 - 46946 \\
 \hline
 46909 \text{ Ans}
 \end{array}$$

12) a) 38609

- 25304

$$\begin{array}{r}
 38609 \\
 - 25304 \\
 \hline
 13305
 \end{array}$$

b) 905043

- 457989

$$\begin{array}{r}
 905043 \\
 - 457989 \\
 \hline
 447054
 \end{array}$$

Word problemsExercise - 8

- ① Vishal Nagar = 6 86 217 people
 Chota pur = 4 03 612 people
 more people live = what
 How many more = what

Sol: more people live in Vishal Nagar

$$\begin{array}{r} 6\ 86\ 217 \\ - 4\ 03\ 612 \\ \hline 2\ 82\ 605 \end{array} \text{ people}$$

Ans

- ② A factory produced
 one year = 57 689 electric bulbs
 Next year = 66 798 "

∴ increase production =

$$\begin{array}{r} 66\ 798 \\ - 57\ 689 \\ \hline 09\ 109 \end{array} \text{ bulbs}$$

- ③ A poultry farm sold
 in 1994 = 35 287 eggs.
 in 1995 = - 3 156 eggs less than 1994
 ∴ sold in 1995 = 32 131 eggs
 in 1995 = 32 131 eggs.
- Ans

④ A flat costs for Rs 4 51 300
Mr. Murthy has for Rs 4 07 895

∴ Need money to buy the flat

$$= \begin{array}{r} 4\ 51\ 300 \\ -\ 4\ 07\ 895 \\ \hline \text{Rs } 0\ 43\ 405 \text{ Ans} \end{array}$$

⑤ A forest has = 2 07 895 trees

Teak trees = 83 649

∴ Other trees = 2 07 895

- 83 649

$$\hline 1\ 24\ 2\ 46 \text{ 'Ans}$$

⑥ A machine costs
Rs 4 23 000

needs Rs 1 56 000 more than the amount

∴ A man money has = 4 23 000

- 1 56 000

$$\hline \text{Rs } 2\ 67\ 000 \text{ Ans}$$

⑦ the sum of two numbers

= 9 87 654

one of them = - 99 765

∴ Other numbers → 8 87 889 Ans

8

What must be added to 16789 to get
73956 ?

sol.

$$\begin{array}{r} 73956 \\ - 16789 \\ \hline \end{array}$$

added $\underline{\underline{57167}}$ Ans

9

By how much is 604378 greater than
567999 ?

sol.

$$\begin{array}{r} 604378 \\ - 567999 \\ \hline 36379 \end{array} \text{ Ans}$$

10

What number must be subtracted
from 456782 to get 378993 ?

sol.

$$\begin{array}{r} 456782 \\ - 378993 \\ \hline 077789 \end{array} \text{ Ans}$$

Exercise 9

Do these sums

① $8 - 2 + 3$

$$= \begin{array}{r} 8 \\ + 3 \\ \hline 11 \\ - 2 \\ \hline 9 \text{ Ans} \end{array}$$

③ $15 + 12 - 14$

$$= \begin{array}{r} 15 \\ + 12 \\ \hline 27 \\ - 14 \\ \hline 13 \text{ An} \end{array}$$

⑦ $289 - 195 + 234$

$$= \begin{array}{r} 289 \\ + 234 \\ \hline 523 \\ - 195 \\ \hline 328 \text{ Ans} \end{array}$$

⑨ $1825 + 380 - 1567$

$$= \begin{array}{r} 1825 \\ + 380 \\ \hline 2205 \\ - 1567 \\ \hline 0638 \text{ An} \end{array}$$

⑬ $503 - 1437 - 246 + 1375 - 95$

$$\begin{array}{r} 503 \\ + 1375 \\ \hline 1878 \\ - 1778 \\ \hline 0100 \text{ Ans} \end{array} \quad + \quad \begin{array}{r} - 1437 \\ - 246 \\ - 95 \\ \hline - 1778 \end{array}$$

Exercise - 10

Word problems

① Resheshwaran gets monthly salary
for Rs 8 460
He works as a part time Rs + 1 345
∴ gets money \rightarrow 9 805

Expenditure \rightarrow - 5 230

∴ he saves money every month \rightarrow 4 575 Ans

② Mr Razvi bought a house for Rs 4 25 000
Spent on painting for Rs + 80 580

∴ Total money spent \rightarrow 5 05 580

He sold the house for Rs 7 50 000

∴ More money did he get = 7 50 000
- 5 05 580

Rs 2 44 420

③ Shop A has

1200 packets of tea

Shop B has \rightarrow 180 packets less than A

= $1200 - 180 = 1020$ packets

Shop C has = 325 packets more than shop A

= $1200 + 325 = 1525$ packets

∴ Together these shop have = Shop A + Shop B + Shop C
= $1200 + 1020 + 1525 = 3745$
Ans

④ ✓ Mrs Kaul earns Rs 34 248 in a year

Mr Kaul earns Rs 24 526 more than Mrs Kaul in a year

$$\begin{aligned} \therefore \text{Mr Kaul earns} &= 34\,248 + 24\,526 \\ &= \text{Rs } 58\,774 \end{aligned}$$

✓ Their son Praveen earns = Rs 10 222 less than Mrs Kaul

$$\begin{aligned} &= 34\,248 - 10\,222 \\ &= \text{Rs } 24\,026 \end{aligned}$$

∴ They earn altogether in a year

$$\begin{array}{r} = 34\,248 \\ + 58\,774 \\ + 24\,026 \\ \hline \text{Rs } 117\,048 \text{ Ans} \end{array}$$

⑤ the sum of the numbers = 10 580
greater numbers = - 6 480

∴ Smaller numbers = $\frac{10\,580 - 6\,480}{1} = 4\,100$ A

$$\begin{array}{r} 10\,580 \\ - 6\,480 \\ \hline 4\,100 \text{ Ans} \end{array}$$

∴ difference numbers → 4 100 Ans

⑥ the sum of the numbers
 $= 8263 + 9152$
 $= 17415 \checkmark$

difference of the numbers
 $= 9152 - 8263$
 $= 889 \checkmark$

\therefore greater numbers
 $= 17415 - 889$
 $= 16526 \text{ Ans}$

⑦ the sum of the numbers
 $= 61235$
 $+ 18790$

 $80025 \checkmark$

difference of the numbers
 $= 61235$
 $- 18790$

 $42445 \checkmark$

\therefore Numbers
 $= 80025$
 $- 42445$

 37580 Ans

Multiplication of numbers

①

$$\begin{array}{r} 128 \\ \times 14 \\ \hline 512 \\ 128 \\ \hline 1792 \end{array}$$

Here the multiplicand = 128
the multiplier = 14
and the product = 1792

② Rule: - Multiplication by 10, 100, 1000 ...
obtained by placing zeros on the right
of the numbers.

for Ex: $312 \times 10 = 3120$
 $312 \times 100 = 31200$
 $312 \times 1000 = 312000$
... etc

③ Rule: - To multiply a number by 20, 200,
3000, 1200 ... etc

for Ex $342 \times 20 = 342 \times 2 = 684 = 6840$
 $= 342 \times 300 = 342 \times 3 = 1026 = 102600$

first multiply the number by 2, 3, 4 ... 9
etc and then place zeros to the right
of the product

$$\underline{\hspace{2cm}} \times \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

Exercise - 12

① find

$$\begin{array}{r} \textcircled{a} \quad 22 \times 13 = 22 \\ = \quad \quad \quad \times 13 \\ \hline \quad \quad \quad 66 \rightarrow (22 \times 3) \\ + \quad \quad 220 \rightarrow (22 \times 10) \\ \hline \quad \quad \quad 286 \end{array}$$

in the short

$$\begin{array}{r} 22 \\ \times 13 \\ \hline 66 \\ + 22 \\ \hline 286 \end{array}$$

② ① 102×33

$$\begin{array}{r} = 102 \\ \times 33 \\ \hline 306 \rightarrow 102 \times 3 \\ 3060 \rightarrow 102 \times 10 \\ \hline 3366 \end{array}$$

$$\begin{array}{r} \textcircled{3} \quad \textcircled{a} \quad 14 \times 28 = 14 \\ \times 28 \\ \hline 112 \rightarrow 14 \times 8 \\ 280 \rightarrow 14 \times 20 \\ \hline 392 \end{array}$$

multiply

⑤ ① 1235 by 38

$$\begin{array}{r} 1235 \\ \times 38 \\ \hline 9880 \rightarrow (1235 \times 8) \\ + 37050 \rightarrow (1235 \times 30) \\ \hline 46930 \end{array}$$

Exercise - 13

① fill in the blanks

$$\textcircled{a} \quad 76 \times 100 = \underline{7600}$$

$$\textcircled{f} \quad 102 \times 400 = \underline{40800}$$

② find

$$\textcircled{a} \quad 141 \times 21$$

$$= \begin{array}{r} 141 \\ \times 21 \\ \hline \end{array}$$

$$\begin{array}{r} 141 \rightarrow (141 \times 1) \\ 2820 \rightarrow (141 \times 20) \\ \hline 2961 \end{array}$$

③

$$\textcircled{a} \quad 134 \times 202$$

$$= \begin{array}{r} 134 \\ \times 202 \\ \hline \end{array}$$

$$\begin{array}{r} 268 \rightarrow (134 \times 2) \\ 0000 \rightarrow (134 \times 0) \\ 26800 \rightarrow (134 \times 200) \\ \hline 27068 \end{array}$$

④

$$\textcircled{a} \quad 1233 \times 123$$

$$\begin{array}{r} 1233 \\ \times 123 \\ \hline \end{array}$$

$$\begin{array}{r} 3699 \rightarrow (1233 \times 3) \\ 24660 \rightarrow (1233 \times 20) \\ 123300 \rightarrow (1233 \times 100) \\ \hline \end{array}$$

⑥ (a) multiply one hundred and one by five hundred and six

Sol.

$$\begin{array}{r}
 101 \times 506 \\
 = \begin{array}{r}
 101 \\
 \times 506 \\
 \hline
 606 \quad \rightarrow 101 \times 6 \\
 + 6000 \quad \rightarrow 101 \times 0 \\
 + 50500 \quad \rightarrow 101 \times 500 \\
 \hline
 51106
 \end{array}
 \end{array}$$

⑩ (a) multiply six hundred and five by two hundred and sixteen.

Sol.

$$\begin{array}{r}
 605 \\
 \times 216 \\
 \hline
 3630 \quad \rightarrow (605 \times 6) \\
 6050 \quad \rightarrow (605 \times 10) \\
 121000 \quad \rightarrow (605 \times 200) \\
 \hline
 130680
 \end{array}$$

⑪ (c) $20 \times 5 \times 6 \times 8$

Sol.

$$\begin{array}{r}
 20 \\
 \times 5 \\
 \hline
 100 \\
 \times 6 \\
 \hline
 600 \\
 \times 8 \\
 \hline
 4800 \quad \text{Ans}
 \end{array}$$

CLASS- IV

Ghuran Choudhary

Sub - MATH (Math-steps)

SIMPLIFICATION

① ODMAS

② BODMAS

B for bracket = कोष्ठ

O for of = का

D for division = भाग

M for multiplication = गुणा

A for Addition = जोड़

S for subtraction = घटाव

Applying these rules to the above sum

Exercise - 14

①

Simplify

$$4 \times 5 - 3 \times 2$$

$$= 20 - 6$$

$$= 14 \text{ Ans}$$

②

$$8 \times 2 - 4 \times 3$$

$$= 16 - 12$$

$$= 4 \text{ Ans}$$

③

$$7 \times 8 - 6 \times 4 + 5 \times 3$$

$$= 56 - 24 + 15$$

$$= 71 - 24$$

$$= 47 \text{ Ans}$$

④

$$10 \times 5 - 12 \times 7 + 8 \times 9$$

$$= 50 - 84 + 72$$

$$= 122 - 84$$

$$= \underline{38 \text{ Ans}}$$

$$\begin{aligned} \textcircled{5} \quad & 9 \times 7 - 5 \times 9 - 4 \times 3 \\ & = 63 - 45 - 12 \\ & = 63 - 57 \\ & = 6 \text{ Ans} \end{aligned}$$

$$\begin{aligned} \textcircled{6} \quad & 18 \times 5 - 8 \times 7 - 6 \times 2 \\ & = 90 - 56 - 12 \\ & = 90 - 68 \\ & = 22 \text{ Ans} \end{aligned}$$

$$\begin{aligned} \textcircled{7} \quad & 11 \times 10 + 3 \times 5 - 15 \times 8 \\ & = 110 + 15 - 120 \\ & = 125 - 120 \\ & = 5 \text{ Ans} \end{aligned}$$

$$\begin{aligned} \textcircled{8} \quad & 15 \times 8 + 10 \times 8 - 20 \times 10 \\ & = 120 + 80 - 200 \\ & = 200 - 200 \\ & = 0 \text{ Ans} \end{aligned}$$

$$\begin{aligned} \textcircled{9} \quad & 102 - 12 \times 7 + 22 - 4 \times 9 \\ & = 102 - 84 + 22 - 36 \\ & = 124 - 84 - 36 \\ & = 124 - 120 \\ & = 4 \text{ Ans} \end{aligned}$$

$$\begin{aligned} \textcircled{10} \quad & 420 - 16 \times 5 - 7 \times 8 - 14 \times 5 \\ & = 420 - 80 - 56 - 70 \\ & = 420 - 206 \\ & = 214 \text{ Ans} \end{aligned}$$

Word problems

Exercise - 15

① Reena has 512 twenty-rupee notes
 ∴ Total money = 512×20
 $= 10240$ rupees Ans

② Days in the month of April = 30 days.
 1 day = 24 hours
 ∴ Total hours = 30×24
 $= 720$ hours Ans

③ A passenger train travels
 every day = 545 Km distance
 ∴ 62 days = 545×62

			545
			x 62

		1090	
		3270	

		33790	Km Ans

④ A bag contains 78 Kg of wheat
 ∴ 785 bags = 78×785

			785
			x 78

		6280	
		5495	

		61230	Kg of wheat

Ans

⑤ The price of a chair is Rs 375

∴ " " 125 chairs = 375×125

$$\begin{array}{r} = 375 \\ \times 125 \\ \hline 1875 \\ + 750 \\ + 375 \\ \hline \text{Rs } 46875 \text{ Ans} \end{array}$$

⑥ Number of packets = 214 packets
each packet contains = 144 matchboxes

∴ Number of matchboxes = 214×144

$$\begin{array}{r} = 214 \\ \times 144 \\ \hline 856 \\ + 856 \\ + 214 \\ \hline 30816 \text{ Ans} \end{array}$$

⑦ Subu earns in a month = Rs 3478

∴ " " in a year (12 months) = 3478×12

$$\begin{array}{r} = 3478 \\ \times 12 \\ \hline 6956 \\ + 3478 \\ \hline \text{Rs } 41736 \text{ Ans} \end{array}$$

⑧ The Cost of making a refrigerator = Rs 11 432

∴ " " " " 101 refrigerators

$$= 11\,432 \times 101$$

$$= 11\,432$$

$$\times 101$$

$$\hline 11\,432$$

$$+ 00000$$

$$+ 11432$$

$$\hline \text{Rs } 1154,632 \text{ Ans}$$

⑨ A truck is loaded with 180 cartons of books

A carton has 35 copies each of 12 different books

$$\begin{aligned} \therefore \text{Number of Copies} &= 180 \times 35 \text{ copies} \\ &= 6300 \text{ copies} \end{aligned}$$

$$\begin{aligned} \therefore \text{Number of books} &= 180 \times 35 \times 12 \\ &= 6300 \times 12 \end{aligned}$$

$$= 75600 \text{ books Ans}$$

⑩ A company makes suitcases in 4 different colours

Every day make = 225 suitcase each four different colour

$$= 225 \times 4$$

$$= 900 \text{ different colour}$$

$$\therefore 26 \text{ days } = 900 \times 26$$

$$= 23400 \text{ suitcases}$$

Ans

Division of numbers.

divisor } dividend (quotient
 ↓
 Remainder

∴ dividend = divisor × quotient + Remainder

When Remainder is zero

then dividend = divisor × quotient

properties of division

property 1 :- If a number is divided by one the quotient is the number itself and there is no remainder.

for ex. $8 \div 1 = 8$

property 2 :- If any number other than zero is divided by itself the quotient will be 1 and there will be no remainder

for ex. $7 \div 7 = 1$

property 3 :- If zero (0) is divided by a number (different from zero) the quotient will be zero (0) and there will be no remainder.

for ex. $0 \div 4 = 0$

Exercise - 16

① fill in the blanks

① $125 \div 1 = \underline{125}$

② $86 \div 86 = \underline{1}$

③ $978 \div 1 = \underline{978}$

④ $0 \div 879 = \underline{0}$

② find

① $88 \div 11$

$$\begin{array}{r} 11 \overline{) 88} \quad 8 \\ - 88 \\ \hline \quad \times \times \end{array}$$

③ find

① $902 \div 11$

$$\begin{array}{r} 11 \overline{) 902} \quad 82 \\ - 88 \\ \hline \quad \times 22 \\ - 22 \\ \hline \quad \quad 00 \end{array}$$

④ Do the sums and verify the answers

① $8652 \div 12$

$$\begin{array}{r} 12 \overline{) 8652} \quad 721 \\ - 84 \\ \hline \quad \times 25 \\ - 24 \\ \hline \quad \quad \times 12 \\ - 12 \\ \hline \quad \quad \quad \times \times \end{array}$$

Verify

$$721 \times 12$$

$$\begin{array}{r} = 721 \\ \times 12 \\ \hline 1442 \\ 721 \\ \hline 8652 \end{array}$$

proved

5) Find

a) $92053 \div 13$

$$\begin{array}{r} 13 \overline{) 92053} \quad (7081 \\ \underline{-91} \\ \times 105 \\ \underline{104} \\ \times 13 \\ \underline{-13} \\ \times \times \end{array}$$

6) Divide and verify the answers.

a) $85 \div 14$

$$\begin{array}{r} 14 \overline{) 85} \quad (6 \\ \underline{-84} \\ 1 \end{array}$$

quotient = 6
remainder = 1 Ans

Verify
dividend = divisor \times quotient
+ remainder

$$= 14 \times 6 + 1$$

$$= 84 + 1$$

$$= 85 \text{ proved.}$$

7) a) $807 \div 26$

$$\begin{array}{r} 26 \overline{) 807} \quad (31 \\ \underline{78} \end{array}$$

$$\begin{array}{r} \times 27 \\ \underline{-26} \\ \times 1 \end{array}$$

quotient = 31
remainder = 1 Ans

8) a) $9559 \div 18$

$$\begin{array}{r} 18 \overline{) 9559} \quad (531 \\ \underline{-90} \end{array}$$

$$\begin{array}{r} \times 55 \\ \underline{-54} \\ \times 19 \\ \underline{-18} \\ \times 1 \end{array}$$

quotient = 531
remainder = 1 Ans

Exercise - 18

Division by Large number

① (a) $999 \div 111$

$$\begin{array}{r} 111 \overline{) 999} \quad (9 \\ - 999 \\ \hline 000 \end{array}$$

(A) $898 \div 449$

$$\begin{array}{r} 449 \overline{) 898} \quad (2 \\ - 898 \\ \hline 000 \end{array}$$

② (a) $1668 \div 139$

$$\begin{array}{r} 139 \overline{) 1668} \quad (12 \\ - 139 \\ \hline 0278 \\ - 278 \\ \hline 000 \end{array}$$

③ $17952 \div 187$

$$\begin{array}{r} 187 \overline{) 17952} \quad (96 \\ - 1683 \\ \hline 1122 \\ - 1122 \\ \hline 0000 \end{array}$$

④ $15920 \div 199$

$$\begin{array}{r} 199 \overline{) 15920} \quad (80 \\ - 1592 \\ \hline 00000 \\ \hline 00000 \end{array}$$

5

$$669 \div 167$$

$$\begin{array}{r}
 167 \overline{) 669} \quad (4 \\
 \underline{- 668} \\
 001
 \end{array}$$

quotient = 4

Remainder = 1 Ans

6

a

$$7345 \div 612$$

$$\begin{array}{r}
 612 \overline{) 7345} \quad (12 \\
 \underline{- 612} \\
 1225 \\
 \underline{- 1224} \\
 \times \times \times 1
 \end{array}$$

quotient = 12

remainder = 1

Ans

7

a

$$74296 \div 123$$

$$\begin{array}{r}
 123 \overline{) 74296} \quad (604 \\
 \underline{- 738} \\
 \times \times 496 \\
 \underline{- 492} \\
 \times \times 4
 \end{array}$$

quotient = 604

remainder = 4

Ans

8

$$81278 \div 789$$

$$\begin{array}{r}
 789 \overline{) 81278} \quad (103 \\
 \underline{- 789} \\
 2378 \\
 \underline{- 2367} \\
 \times \times 11
 \end{array}$$

quotient = 103

remainder = 11

Ans

Word problems

Exercise - 19

- ① 432 packets of noodles are to be packed
sol:- in boxes.
72 packets in each box.

$$\begin{array}{r} \therefore \text{Number of boxes} = 72 \overline{) 432} \quad (6 \\ \underline{-432} \\ \times \times \times \\ \hline \end{array} = 6 \text{ Ans.}$$

- ② How many weeks do 5047 days make?
sol:- \rightarrow 1 week = 7 days.

$$\begin{array}{r} \therefore 7 \overline{) 5047} \quad (721 \\ \underline{-49} \\ \times 14 \\ \underline{-14} \\ \times \times 7 \\ \underline{-7} \\ \times \\ \hline \end{array} = 721 \text{ - Weeks} \\ \text{Ans}$$

- ③ A cloth mill makes 15780 metres of cloth
in the month of april.

sol. \therefore in april = 30 days

$$\therefore \text{daily production} = 15780 \div 30$$

$$\begin{array}{r}
 30) 15780 \mid 526 \\
 \underline{-150} \\
 \times \times 78 \\
 \underline{-60} \\
 180 \\
 \underline{-180} \\
 000
 \end{array}$$

= 526 metres Ans

④

53064 soldiers standing in 264 rows.
Each row equal number of soldiers.

Sol: - In each row number of soldiers.

$$53064 \div 264$$

$$\begin{array}{r}
 264) 53064 \mid 201 \\
 \underline{-528} \\
 \times \times 264 \\
 \underline{-264} \\
 000
 \end{array}$$

= 201 soldiers in each row
Ans

⑤

101 huts ^{built} for the homeless.

Total costs of hut for Rs 816282

∴ each hut cost $816282 \div 101$

$$\begin{array}{r}
 101) 816282 \mid 8082 \\
 \underline{-808} \\
 \times \times 828 \\
 \underline{-808} \\
 \times 202 \\
 \underline{-202} \\
 000
 \end{array}$$

∴ each hut cost = Rs 8082
Ans.

⑥

dividend = 5984
 divisor = 34
 quotient = What

Sol:

$$\begin{array}{r}
 34 \overline{) 5984} \quad | 176 \\
 \underline{- 34} \\
 258 \\
 \underline{- 238} \\
 204 \\
 \underline{- 204} \\
 \times \times \times
 \end{array}$$

quotient = 176 Ans

⑦

divisor = 357
 quotient = 29
 remainder = 0
 dividend = What

Sol.

$$\begin{aligned}
 \text{dividend} &= \text{divisor} \times \text{quotient} + \text{remainder} \\
 &= 357 \times 29 + 0 \\
 &= 10353 + 0 \\
 &= \underline{10353} \text{ Ans.}
 \end{aligned}$$

⑧

divisor = 27
 quotient = 103
 remainder = 7
 find the number (dividend) = What

Sol: -

$$\begin{aligned}
 \text{dividend} &= \text{divisor} \times \text{quotient} + \text{remainder} \\
 &= 27 \times 103 + 7 \\
 &= 2781 + 7 \\
 &= \underline{2788} \text{ Ans.}
 \end{aligned}$$

9) dividend = 89012
 quotient = 17
 divisor = what

Sol:- divisor = dividend \div quotient
 = 89012 \div 17

$$\begin{array}{r}
 17 \overline{) 89012} \quad \{ 5236 \\
 \underline{- 85} \\
 \times 40 \\
 \underline{- 34} \\
 \times 61 \\
 \underline{- 51} \\
 102 \\
 \underline{- 102} \\
 \times \times \times
 \end{array}$$

\therefore divisor = 5236 Ans

10) The product of two numbers 13260
 one of the number = 204
 find other no = what

Sol: Other number = 13260 \div 204

$$\begin{array}{r}
 204 \overline{) 13260} \quad \{ 65 \\
 \underline{- 1224} \\
 \times 1020 \\
 \underline{- 1020} \\
 \times \times \times
 \end{array}$$

= 65 Ans.

8
⑪ (a) find the smallest number of four digits which is divisible by 27

Sol: - The smallest number of four digits = 1000

$$\therefore 1000 \div 27$$

$$\begin{array}{r} 27 \overline{) 1000} \quad (37 \\ - 81 \\ \hline \times 190 \\ - 189 \\ \hline \times \times 1 \end{array}$$

$$\text{The required number} = 1000 - 1 + 27$$

$$= 1027 - 1$$

$$= 1026 \text{ Ans}$$

⑫ (a) Find the greatest number of 5 digits which is divisible by 287

Sol: - The greatest number of 5 digits = 99999

$$\therefore 99999 \div 287$$

$$\begin{array}{r} 287 \overline{) 99999} \quad (348 \\ - 861 \\ \hline 1389 \\ - 1148 \\ \hline 2419 \\ - 2296 \\ \hline \times 123 \end{array}$$

$$\therefore \text{The required no} = 99999 - 123$$

$$= 99876 \text{ Ans}$$

Exercise - 20

Simplification = BODMAS

$$\begin{aligned} \textcircled{1} \quad 16 \div 2 \text{ of } 8 \\ = 16 \div 16 \\ = 1 \text{ Ans} \end{aligned}$$

$$\begin{aligned} \textcircled{2} \quad 16 \div 2 \times 8 \\ = 16 \div 2 \times 8 \\ = 8 \times 8 \\ = 64 \text{ Ans} \end{aligned}$$

$$\begin{aligned} \textcircled{3} \quad 16 \text{ of } 4 \div 2 \\ = 64 \div 2 \\ = 32 \text{ Ans} \end{aligned}$$

$$\begin{aligned} \textcircled{4} \quad 16 \times 8 \div 4 \\ = 16 \times 2 \\ = 32 \text{ Ans} \end{aligned}$$

$$\begin{aligned} \textcircled{5} \quad 20 \div 2 - 10 \times 2 + 5 \text{ of } 4 \div 5 + 20 \\ = 20 \div 2 - 10 \times 2 + 20 \div 5 + 20 \\ = 10 - 10 \times 2 + 4 + 20 \\ = 10 - 20 + 4 + 20 \\ = 34 - 20 \\ = 14 \text{ Ans} \end{aligned}$$

$$\begin{aligned} \textcircled{6} \quad 25 \div 5 \text{ of } 5 \times 2 \text{ of } 3 + 7 - 6 \\ = 25 \div 25 \times 6 + 7 - 6 \\ = 1 \times 6 + 7 - 6 \\ = 13 - 6 \\ = 7 \text{ Ans} \end{aligned}$$

$$\begin{aligned}
 \textcircled{7} \quad & 125 \div 4 \div 10 \div 5 - 9 \times 7 + 160 \div 2 \\
 & = 500 \div 50 - 9 \times 7 + 160 \div 2 \\
 & = 10 - 9 \times 7 + 80 \\
 & = 10 - 63 + 80 \\
 & = 90 - 63 \\
 & = 27 \text{ Ans}
 \end{aligned}$$

$$\begin{aligned}
 \textcircled{8} \quad & 12 \div 4 \div 3 + 7 - 2 \times 4 \\
 & = 12 \div 12 + 7 - 2 \times 4 \\
 & = 1 + 7 - 2 \times 4 \\
 & = 1 + 7 - 8 \\
 & = 8 - 8 \\
 & = 0 \text{ Ans}
 \end{aligned}$$

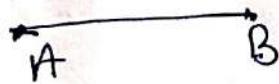
$$\begin{aligned}
 \textcircled{9} \quad & 4900 \div 350 \times 145 \\
 & = 14 \times 145 \\
 & = 2030 \text{ Ans}
 \end{aligned}$$

$$\begin{aligned}
 \textcircled{10} \quad & 220 + 24 \times 60 - 1089 \div 99 \\
 & = 220 + 24 \times 60 - 11 \\
 & = 220 + 1440 - 11 \\
 & = 1660 - 11 \\
 & = 1649 \text{ Ans}
 \end{aligned}$$

GEOMETRY

Line segment (रेखाखंड) :- The line segment has two end points. It cannot be extended (जोड़ा), it has a fixed length.

For Ex. Here AB is a line segment



AB is written as \overline{AB}

Ray (किरण) :- The ray has one end point. It can be extended on one side. It has no fixed length.

For Ex.



Here AB is a ray.

AB is written as \overrightarrow{AB}

Straight line (सरल रेखा) :- The straight line has no end point. It can be extended on both sides. It has no fixed length.

For Ex.



Here AB is a straight line.

AB is written as \overleftrightarrow{AB}



Exercise - 71

① How many line segments are there in each figure?

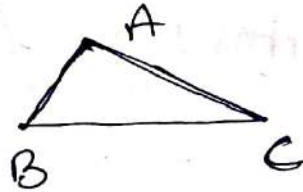
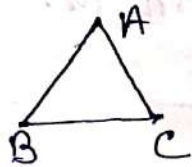
Ⓐ → 5

Ⓑ → 6

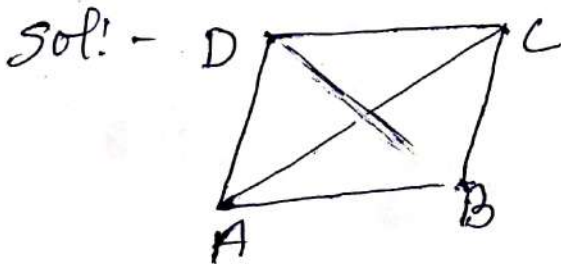
Ⓒ → 9

② Draw as many line segments with the end points at the three given points A, B and C

Sol: -



③ Draw six line segments with the end points at the four given points A, B, C and D



④ What do they represent ray, line segment or straight line.

Sol: - line segment : - Ⓐ \overline{CD}

Ray : - Ⓑ \overrightarrow{PD}

Straight line : - Ⓒ \overleftrightarrow{EF}

⑤ Write the name ray, line segment or straight line with symbol

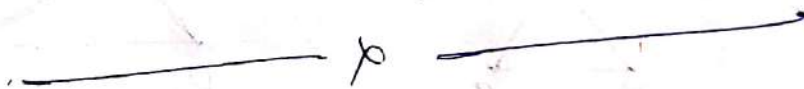
Sol: - ray: \rightarrow (a) Symbol \overrightarrow{LM}

line segment: \rightarrow (c) \overline{EF}

Straight line: \rightarrow (b) \overleftrightarrow{xy}

⑥ Which has two end points?

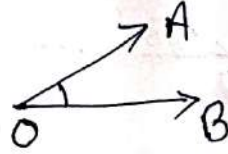
Ans: - line segment.



ANGLE (कोण)

* Angle (कोण): - The two arms meet at a point form an angle each other to be said an angle.

For Ex.



Here "O" is called the vertex
OA and OB are arms

Angle is denoted by this symbol " \angle "

that is $\angle AOB$ or $\angle BOA$

* Some angles

* Straight angle (सहस्रकोण): - A straight angle has the measure 180 degrees.

For Ex. $\overset{A}{\curvearrowright} \overset{B}{\curvearrowleft} = \angle AOB = 180^\circ$

* Right angle (एककोण): -

A right angle has the measure 90°

For Ex. $\overset{A}{\perp} \overset{B}{\perp} = \angle AOB = \angle BOA = 90^\circ$

* Complete angle (एकचक्रकोण) A complete angle has the measure 360°

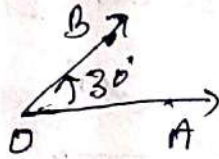


one complete revolution about $O = 360^\circ$

* TYPES OF ANGLE

* Acute angle (अकूट कोण) :- An angle whose measure is less than a right angle is called an acute angle

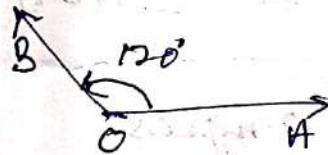
For Ex



$\angle AOB =$ acute angle
that is $\angle AOB = 30^\circ$

* Obtuse angle (अकूट कोण) :- An angle, whose measure is greater than a right angle but less than a straight angle is called an obtuse angle.

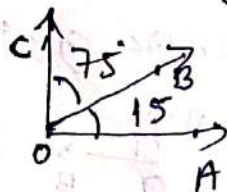
For Ex.



$\angle AOB = 120^\circ$

* Complementary angles (पूरक कोण) :- Two angles are said to be complementary angles if the sum of their measure is equal to a right angle (90°)

For Ex

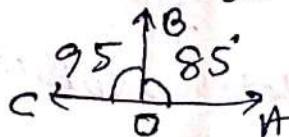


$\angle AOB + \angle BOC =$ right angle

that is $\angle 15^\circ + \angle 75^\circ = \angle 90^\circ$

* Supplementary angle (सम्पूरक कोण) :- Two angles are said to be supplementary angle if the sum of their measures is equal to a straight angle (180°)

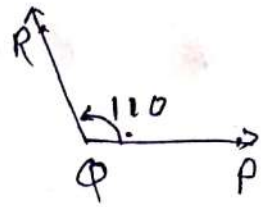
For Ex



$\angle AOB + \angle BOC =$ Supplementary
 $\angle 85^\circ + \angle 95^\circ = \angle 180^\circ$

Exercise - 72

- ① (a) Name the arms of the angle : - \vec{PQ} and \vec{QR}



- (b) Name the vertex : - Q

- (c) Write the name and measure of the angle : - $\angle PQR = 110^\circ$

- ② Write which of the two angles $\angle AOB$ and $\angle COD$ has the greater measure.

Sol: - (a) $\angle AOB$

(b) $\angle AOD$

(c) $\angle AOB$

- ③ Fill in the blanks.

(a) The measure of a right angle = 90°

(b) The measure of a straight angle = 180°

(c) The measure of a complete angle = 360°

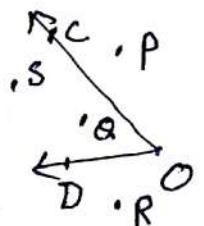
(d) The measure of a straight angle =

2 \times the measure of right angle

- ④ Fill in the blanks

(a) P is in the exterior of the angle COD

(b) Q is in the interior of the angle COD



7) Pick the acute angles, obtuse angle and right angle.

Sol:- acute angle :-

$$\textcircled{a} = 30^\circ, \textcircled{b} = 80^\circ, \textcircled{f} = 10^\circ$$

$$\text{obtuse angle} = \textcircled{c} = 100^\circ, \textcircled{d} = 150^\circ$$

$$\text{Right angle} = \textcircled{e} = 90^\circ$$

8) a) obtuse angle.

b) complementary angle

c) acute angle

9) write the complementary angle.

$$\textcircled{a} \text{ complementary angle of } 45^\circ = 45^\circ = (90^\circ - 45^\circ)$$

$$\textcircled{b} \text{ " " of } 54^\circ = 36^\circ$$

$$\textcircled{c} \text{ " " of } 89^\circ = 1^\circ$$

$$\textcircled{d} \text{ " " of } 65^\circ = 25^\circ$$

$$\textcircled{e} \text{ " " of } 30^\circ = 60^\circ$$

10) write the supplementary angle! -

$$\textcircled{a} \text{ supplementary angle of } 25^\circ = 155^\circ = (180^\circ - 25^\circ)$$

$$\textcircled{b} \text{ " " of } 75^\circ = 105^\circ$$

$$\textcircled{c} \text{ " " of } 90^\circ = 90^\circ$$

$$\textcircled{d} \text{ " " of } 160^\circ = 20^\circ$$