

Class: VI
Subject: Mathematics
Topic: OASK1506SA102
No. of Questions: 30
Duration: 90 Min
Maximum Marks: 90

- 1) The total number of 4-digit numbers is?
(A) 8999
(B) 9000
(C) 8000
(D) 9999

Sol.(B)

The smallest four-digit number is 1,000 and the largest four-digit number is 9999

$$\therefore \text{Total number of four-digit numbers} = (9,999 - 1,000) + 1 = 9,000$$

- 2) Write the opposite of the 100 m above sea level?
(A) Profit 100 m sea level
(B) Decrease sea level
(C) -100 m
(D) 100 m below sea level

Sol. (D)

The height of a place above the sea level is denoted by a positive number. Thus, below the surface of the sea level we can denoted the height by a negative number.

- 3) The successor of 1 million is?
(A) 10001
(B) 100001
(C) 1000001
(D) 10000001

SOL. (C)

We have 1 million

$$1 \text{ million} = 10,00,000$$

$$\begin{aligned} \text{Successor of 1 million} &= 10,00,000 + 1 \\ &= 10,00,001 \end{aligned}$$

4) Find the common factors of 20 and 28?

- (A) 20, 28
- (B) 1, 2, 4
- (C) 1, 5, 10, 20
- (D) 2, 28,

SOL. (B)

Factors of 20: 1, 2, 4, 5, 10, and 20

Factors of 28: 1, 2, 4, 7, 14, and 28

Common factors of 20 and 28: 1, 2, and 4

5) The number of faces of a triangular pyramid is?

- (A) 3
- (B) 4
- (C) 6
- (D) 8

SOL. (B)

A pyramid is called a triangular pyramid if its base is a triangle. It has 4 faces.

6) Smallest whole number is?

- (A) 0
- (B) 1
- (C) -1
- (D) Non-existent

Sol.(A)

The number 0 is the first and the smallest whole number.

7) The figure formed by two rays with the same initial point is known as?

- (A) A ray
- (B) A line
- (C) An angle
- (D) A line segment

Sol.(C)

An angle is a figure formed by two rays with the same initial point.

8) Write in Roman Number 69?

- (A) LXX
- (B) LIX
- (C) LXIX
- (D) LXXI

Sol.(C)

We have,

$$69 = 60 + 9$$

$$=(50 + 10) + 9 = LX + IX = LXIX$$

SECTION

9) Calculate $1 - 2 + 3 - 4 + 5 - 6 + 7 - 8 + \dots + 19 - 20$?

SOL. We have,

$$1 - 2 + 3 - 4 + 5 - 6 + 7 - 8 + \dots + 19 - 20$$

$$= (1 + 3 + 5 + 7 + 9 + 11 + 13 + 15 + 17 + 19) +$$

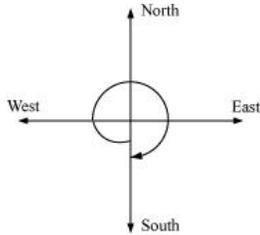
$$[(-2) + (-4) + (-6) + (-8) + (-10) + (-12) + (-14) + (-16) + (-18) + (-20)]$$

$$= 100 + (-110)$$

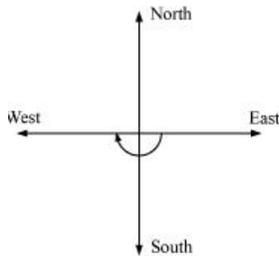
$$= -10$$

- 10) Which direction will you face if you start facing:
- a. south and make one full revolution?
 - b. east and make half of a revolution clockwise

Sol: (a) If we start facing South and make a full revolution, then we will again face the south direction



(b) If we start facing East and make $\frac{1}{2}$ of a revolution clockwise, then we will face the west direction.



11) Write the roman number in Hindu- Arabic numerals:

(i) CCXXVIII

(ii) CDXLVI

Sol. We have

$$\begin{aligned} \text{(i) } CCXXVIII &= CC + XX + VIII \\ &= 200 + 20 + 8 \\ &= 228 \end{aligned}$$

$$\begin{aligned} \text{(ii) } CDXLVI &= CD + XL + VI \\ &= 400 + 40 + 6 \\ &= 446 \end{aligned}$$

12) Find the greatest number which on dividing 1657 and 2037 leaves remainders 6 and 5 respectively?

Sol. Required number = H.C.F. of $(1657 - 6)$ and $(2037 - 5)$ = H.C.F. of 1651 and 2032

$$\begin{array}{r}
 1651 \overline{) 2032} \quad (1 \\
 \underline{1651} \\
 381 \quad 1651 \quad (4 \\
 \underline{1524} \\
 127 \quad 381 \quad (3 \\
 \underline{381} \\
 0
 \end{array}$$

Required number = 127

13) Simplify: $108 \times 55 + 108 \times 45$?

Sol. Consider, $108 \times 55 + 108 \times 45$

Recall the distributive property, $a(b + c) = (a \times b) + (a \times c)$

$$\therefore 108 \times 55 + 108 \times 45 = 108(55 + 45)$$

$$= 108 \times 100$$

$$= 10800$$

14) The number of sheets of paper available for making notebooks is 75000. Each sheet makes 8 pages of a notebook. Each notebook contains 200 pages. How many notebooks can be made from the paper available?

Sol. It is given that each sheet makes 8 pages. Therefore, 75000 sheets will make 75000×8 pages

Now,

$$\begin{array}{r}
 75000 \\
 \times 8 \\
 \hline
 6,00,000
 \end{array}$$

Thus, 6, 00,000 pages are available for making notebooks

It is given that 200 pages make one notebook. Therefore, 6, 00,000 pages will make $6,00,000 \div 200$ notebooks

Now,

$$\begin{array}{r}
 3,000 \\
 2 \overline{) 6,00,000} \\
 \underline{600} \\
 00000
 \end{array}$$

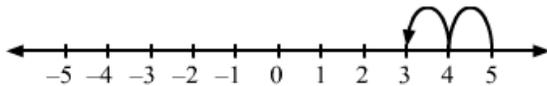
Hence, 3000 notebooks can be made from the given sheets of paper

SECTION

- 15) (a) Using number line find the sum 5 and (-2) ?
(b) Simplify $(-47352) + 21943$

Sol. (a) If we start from 5 and move 2 units to the left of 5, we will obtain 3,

Thus, we have $5 + (-2) = 3$



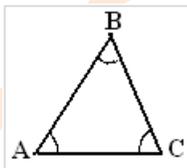
- (b) Here, -47352 has greater absolute value than the absolute value of 21943 . So, we subtract 21943 from 47352 and assign minus sign to the result

$$\begin{aligned}\therefore (-47352) + 21943 &= -(47352 - 21943) \\ &= -25409\end{aligned}$$

- 16) Describe the types of triangles on the basis of angles?

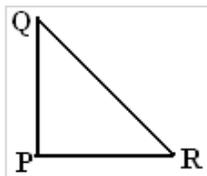
Sol. 1] A triangle whose all the angles are acute ($< 90^\circ$) is called an Acute-Angled Triangle or

Acute Triangle



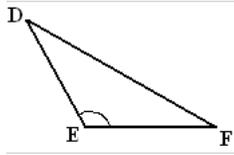
2] A triangle whose one angle is a right angle ($= 90^\circ$), is called a Right-angled Triangle or Right Triangle.

A triangle cannot have more than 1 right angle



3] A triangle whose one angle is obtuse ($\geq 90^\circ$) is called an Obtuse-Angled triangle or Obtuse Triangle.

A triangle cannot have more than one obtuse angle



17) Alex had Rs.61000. He gave Rs.8750 to John, Rs.12638 to Peter and Rs.35000 to Sam. How much money was left with him?

Sol. We have,

Total money with Alex = Rs.61000

Money given to (John, Sam and Peter) = Rs. (8750 + 12638 + 35000)

$$= \text{Rs}\{8750 + 35000\} + 12638]$$

$$= \text{Rs} (43750 + 12638)$$

$$= \text{Rs}56388$$

\therefore Money left with Alex = Rs.(61000 – 56388)

$$= \text{Rs} 4612$$

- 18)** The traffic lights at three different road crossings change after every 48 sec, 72 sec and 108 sec respectively. If they all change simultaneously at 8:20:00 hours, then at what time they again change simultaneously?

Sol. We have to find L.C.M of 48, 72, 108

2	48, 78, 108
2	24, 36, 54
2	12, 18, 27
2	6, 9, 27
2	3, 9, 27
3	1, 3, 9
3	1, 1, 3
3	1, 1, 1

$$\therefore \text{L.C.M} = 3^3 \times 2^4 = 432$$

Interval of change = (L.C.M of 48, 72, 108) sec. = 432 sec.

So, the lights will again change simultaneously after every 432 seconds i.e., 7 min. 12 sec

Hence, next simultaneous change will take place at 8:27:12 hrs

- 19)** Estimate $5,673 - 436$ by rounding off the numbers to their greatest places. Also, find the reasonable estimate.

Sol. We have $5673 - 436 = 5237$

The greatest place in 5,673 is thousands place and in 436 the greatest place is hundreds

Place.

Estimating 5673 to nearest thousands, we get 6000

Estimating 436 to nearest hundreds, we get 400

$$\therefore \text{Estimated difference} = 6000 - 400 = 5600$$

Clearly, it is not closer to actual difference. So, it is not a reasonable estimate.

Round off 5673 and 436 to nearest hundreds

5673 round off as 5700

436 round off as 400

\therefore Estimated difference = $5700 - 400 = 5300$

This is a better and more meaning estimate as it is more closer to the actual difference

20) Using divisibility test, check 751679823 is divisible by 11?

Sol. We have,

751679823

Sum of the digits at odd places = $7 + 1 + 7 + 8 + 3 = 26$

Sum of the digits at even places = $5 + 6 + 9 + 2 = 22$

Difference = $26 - 22 = 4$

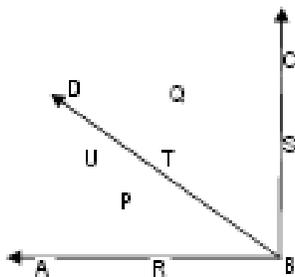
As the difference between the sum of the digits at odd places and the even places is 4 ,

Therefore, 751679823 is not divisible by 11

[\therefore Difference is either 0 or divisible by 11 , then the number is divisible by 11]

21) In the given diagram name the points

- In the interior of $\angle CBD$
- In the exterior of $\angle ABD$?
- on $\angle CBD$



Sol. (a) in the interior of $\angle CBD = Q, T$

(b) in the exterior of $\angle ABD = Q, T, S, C$

(c) On $\angle CBD = B, C, D, S$

- 22)** (a) Subtract the sum of -250 and -130 from the sum of 236 and -470
 (b) The sum of the two integers is -364 . If one of them is 96 , determine the other.

Sol.(a) We have,

$$= -250 + (-130) = -380$$

$$\text{And } 236 + (-470) = -134$$

Now,

Subtract -380 from -134

$$= -134 - (-380)$$

$$= -134 + 380$$

$$= 246$$

(b) We have,

$$\text{Required integer} = -364 - 96$$

$$= -(364 + 96)$$

$$= -460$$

SECTION

- 23)** (a) In the Sahara Desert one day it was 136°F . In the Gobi Desert a temperature of -50°F was recorded. What is the difference between these two temperatures?
 (b) A submarine was situated 800 feet below sea level. If it ascends 250 feet, what is its new position?

Sol. (a) Temperature in Sahara desert = 136°F

Temperature in Gobi desert = -50°F

Difference in temperature = $[136 - (-50)]^{\circ}\text{F}$

= $(136 + 50)^{\circ}\text{F}$

= 186°F

(b) Earlier position of submarine (below sea level) = -800 feet

Position of the submarine after its ascends = $+250$ feet

New position of submarine = $(-800) + 250$

= -550 feet

24) Find the smallest number of five digits exactly divisible by 16, 24, 36 and 54?

Sol. Smallest number of five digits is 10000.

2	16	-	24	-	36	-	54
2	8	-	12	-	18	-	27
2	4	-	6	-	9	-	27
3	2	-	3	-	9	-	27
3	2	-	1	-	3	-	9
	2	-	1	-	1	-	3

$\therefore \text{L.C.M.} = 2 \times 2 \times 2 \times 3 \times 3 \times 2 \times 3 = 432.$

Required number must be divisible by L.C.M. of 16, 24, 36, 54 i.e 432,

On dividing 10000 by 432, we get 64 as remainder.

\therefore Required number = $10000 + (432 - 64) = 10368$

25) A class of 37 children was deciding what type of drink they should have when they go on picnic.

15 children said they would like cola, 17 said they would like orange and the remainder said they would like fruit juice. Cola and orange cost 35p each. Fruit juice costs 25p. How much the drinks would cost for the whole class?

Sol. Total number of children = 35

Number of children who want cola = 15

Number of children who want orange = 17

$$\text{Number of children who want fruit juice} = 37 - (15+17) = 37-32 = 5$$

$$\text{Total cost} = (15 \times 35p) + (17 \times 35p) + (5 \times 25p)$$

$$= (15 + 17) \times 35p + (5 \times 25p)$$

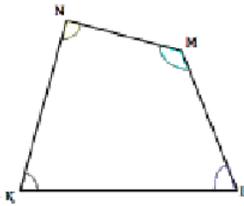
$$= 32 \times 35p + (5 \times 25p)$$

$$= 1120p + 125p = 1245p$$

26) Draw a rough sketch of a quadrilateral and state

- Two pairs of opposite sides,
- Two pairs of opposite angles,
- Two pairs of adjacent sides,
- Two pairs of adjacent angles

Sol.



Let KLMN be a quadrilateral

- Pair of opposite sides: KL and MN; LM and KN.
- Pair of opposite angles: $\angle K$, $\angle M$ and $\angle L$, $\angle N$
- Pair of adjacent sides: KL and LM; LM and MN
- Pair of adjacent angles: $\angle K$ and $\angle L$; and $\angle L$ and $\angle M$