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www.askiitians.com
Email: info@askiitians.com
Tel: 1800-2000-838

Class: VI
Subject: Mathematics
Topic: OASK1506SA101
No. of Questions: 30
Duration: 90 Min
Maximum Marks: 90

1) What is the product of a whole number (other than zero) and its successor?(give example)

Sol. An even number

Example

Whole number = 1

Successor 0f 1 = 1 + 1 = 2

Their product = 1 × 2 = 2

Thus, 2 is an even number

2) Find numbers between 1 and 100 having exactly three factors.

Sol. The 3 factors are 1, the prime, and the prime squared (which is the number itself)

factors of 4 are 1,2,4
factors of 9 are 1,3,9
factors of 25 are 1,5,25
factors of 49 are 1,7,49

3) How many millimeters make 1 kilometer?

Sol. 1 Kilometer = 1 000 000 Millimeters

4) Write the opposite of (I) depositing money in a bank

(II) Increase in population

Sol. (I) withdrawing money from a bank

(II) decrease in population

5) How many faces and edges has triangular pyramid

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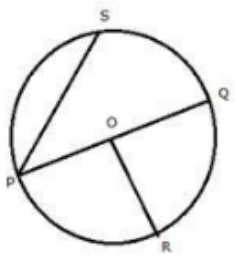
Sol . It has 4 faces and 6 edges

6) Name all the radii drawn in the given figure:



Sol. Radius of a circle is a line joining the center of circle to any point on the circle. So, the radii drawn in the given figure are OP, OQ and OR

7) Find the difference between the place values of 6 and 3 in 256839?

Sol. The place value of 6 in 256839 = 6 thousands = 6000

The place value of 3 in 256839 = 3 tens = 30

∴ difference = 6000 – 30 = 5970

8) Why is it better to use a divider than a ruler, while measuring the length of a line segment?

Sol. The thickness of the ruler sometimes causes an error in placing zero mark at one end of the line segment. To avoid this error we use divider for measuring the length of a line segment

Section B

9) Determine whether 25110 is divisible by 45?

Sol. Given number is 25110

Since the last digit of the number is 0, the given number is divisible by 5.

Consider the sum of digits of 25110 = 2 + 5 + 1 + 1 + 0 = 9

Hence sum of digits of 25110 is divisible by 9.

Therefore 25110 is also divisible by 9.

Notice that 25110 is divisible by both 5 and 9, hence it is divisible by 45.

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10) On a particular day, the temperature of Delhi at 10 a.m. was 13°C but by the mid-night, it fell down to 6°C. The temperature of Chennai at 10 a.m. the same day was 18°C but fell down to 10°C by the mid-night. Which fall is greater?

Sol. We have,

Fall in Delhi's temperature = 13°C - 6°C = 7°C

Fall in Chennai's temperature = 18° - 10°C = 8°C

Clearly, 8°C > 7°C

Hence, fall in temperature of Chennai is greater.

11) Find the estimated quotient 2838 ÷ 125 by rounding off the numerator and denominator to the nearest hundreds.

Sol. We find that

2838 rounds off to nearest hundreds as 2800

125 rounds off to nearest hundreds as 100

∴ Estimated quotient = 2800 ÷ 100 = 28

12) The sum of two integers is 238. If one of the integer integers is – 122, determine the other.

Sol. Let x and y be two integers such that x + y = 238

Given x = -122

Now,

x + y = 238

⇒ - 122 + y = 238

⇒ y = 238 + 122 = 360

So, the other integer is 360

13) Given that the H.C.F. of two numbers is 16 and their product is 6400, determine their L.C.M.

Sol. We know that :

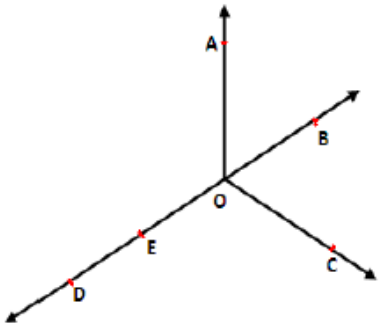
H.C.F × L.C.M = product of numbers

$\therefore$ L.C.M = $\frac{\text{product of numbers}}{\text{H.C.F}}$

Here, H.C.F = 16 and the product of numbers = 6400

$\therefore$ L.C.M = $\frac{6400}{16} = 400$

14) Using the figure : Write (a) five line segments
(b) Three rays



Sol. In the given figure
(a) Line segments: $\overline{OB}$, $\overline{OE}$, $\overline{OD}$, $\overline{DE}$, $\overline{\overline{BE}}$
(b) Rays: $\overrightarrow{OA}$, $\overrightarrow{OB}$, $\overrightarrow{OC}$

15) Find the number which when divided by 46 gives quotient 11 and remainder 18.

Sol. We have,

Divisor = 46, Quotient = 11 and Remainder = 18

We have to find the dividend. By Divison algorithm we have,

Dividend = Divisor $\times$ Quotient + remainder

$\Rightarrow$ Dividend = 46 × 11 + 18

Dividend = 506 + 18 = 524

Hence, the required number = 524

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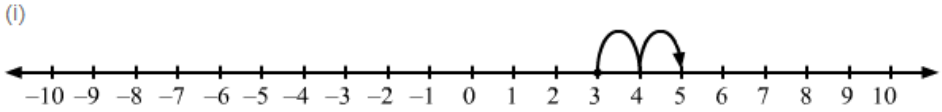
Section C

16) Using the number line, write the integer which is

(I) 2 more than 3 (II) 5 less than 3 (III) 4 more than -9

Sol. (I) we want an integer two more than 3. So, on the number line, we will start from 3 and move 2 units to the right to obtain 5.

(i)

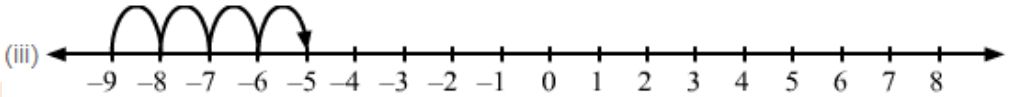


(II) we want an integer five less than 3. So, on the number line, we will start from 3 and move 5 units to the left to obtain -2.

(ii)

(III) we want an integer four more than -9. So, on the number line, we will start from -9 and move 4 units to the right to obtain -5.

(iii)



17) A dealer purchased 125 colour television sets. If the cost of each set is Rs 19820, determine the cost of all sets together.

Sol. Cost of 1 colour television set = Rs. 19820

∴ cost of 125 colour television sets = Rs (19820 × 125)

= Rs 19820 × (100 + 25)

= Rs (19820 × 100) + (19820 × 25)

= Rs 1982000 + 495500

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= Rs 2477500

18) Write the following in roman numerals?

(A) 5839

(B) 1999

(C) 2359

Sol.

(A) 5839 = 5000 + 800 + 30 + 9 = $\overline{V}$ + DCCC + XXX + IX = $\overline{V}$DCCCXXXIX

(B) 1999 = 1000 + 900 + 90 + 9 = K + CK + XC + IX = KCKXCIX

(C) 2359 = 2000 + 300 + 50 + 9 = KK + CCC + L + IX = KKCCCLIX

19) Find the greatest number of 6 digits exactly divisible by 24 ,15 and 36

Sol. The number exactly divisible by 24, 15 and 36 must be their L.C.M. So, we first compute the

L.C.M. of 24, 15 and 36 as under :

3	24, 15, 36
2	8, 5, 12
2	4, 5, 6
	2, 5, 3

$\therefore$ L. C. M = 3 × 2 × 2 × 2 × 3 = 360

Now, greatest number of 6 digits = 999999.

```
360 ) 99999 ( 277.77
      720
      ----
      2799
      2520
      ----
       2799
       2520
       ----
        2790
        2520
        ----
         2790
         2520
         ----
          279
```

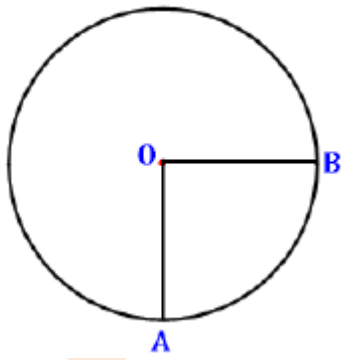
We find that when 999999 is divided by 360, the remainder 279

∴ Greatest number of six digits which is exactly divisible by 360,

= the L.C.M. of 24, 15 and 36 = 999999 – 279 = 999720

20) Draw a circle and mark (a) arc (b) radius

Sol.



AB is the arc and OA,

OB is radii of the circle

21) To stitch a shirt 2m 15 cm of cloth is needed. How many shirts can be stitched from 40 m of cloth and also find how much cloth is left?

Sol. Given that to stitch one shirt, cloth needed = 2 m 15 cm

= 215 cm (1 m = 100 cm)

Total length of cloth = 40 m

= 40 × 100 = 4000 cm

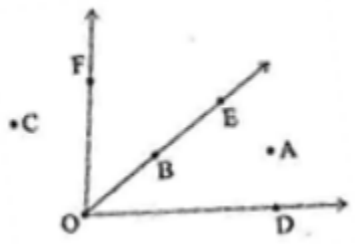
Hence the number of shirts that can be stitched out of 40 m cloth = 4000 ÷ 215

$$\begin{array}{r} 18 \\ 215\overline{)4000} \\ 215 \\ \hline 1850 \\ 1720 \\ \hline 130 \end{array}$$

Thus the number of shirts that can be stitched = 18

Cloth left = 130 cm

22) In fig, name the points which are



(I) in the interior of ∠DOE

(II) in the exterior of ∠EOF

(III) on ∠EOF

Sol : (I) point A lie in the interior of ∠DOE

(II) points O and A are in the exterior of ∠EOF

(III) point B are on ∠EOF

23) Find the values of each of the following using various properties:

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(I) 538 × 8 + 538 × 2 (II) 7869 × 92 + 7869 × 8
(III) 887 × 10 × 461 – 361 × 8870

Sol. (I) we have

538 × 8 + 538 × 2 = 538 × (8 + 2) [Using distributive]

= 538 × 10 = 5380 [∵ 8 + 2 = 10]

(II) 7869 × 92 + 7869 × 8 = 7869 × (92 + 8) [Using distributive]

= 7869 × 100 = 786900 [∵ 92 + 8 = 100]

(III) 887 × 10 × 461 – 361 × 8870 = (887 × 10) × 461 – 361 × 8870

= 8870 × 461 – 8870 × 361

= 8870 × (461 – 361)

= 8870 × 100 = 887000

Section D

24) Find the value of

(I) $-12 + (-98) - (-84) + (-7)$

(II) $50 - (-48) - (-2) - 110$

Sol. We have,

(I) $-12 + (-98) — 84 + (-7)$

= - 12 – 98 + 84 – 7

= (−12 – 98 – 7) + 84

= −117 + 84

= − 33

(II) $50 - (-48) - (-2) - 110$

= 50 + 48 + 2 – 100

= (50 + 48 + 2) – 100

= 100 + (−110)

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$= -10$

25) A student multiplied 7236 by 65 instead of multiplying by 56. How much was his answer greater than the correct answer?

We have

7236	7236
× 65	× 65
36180	43416
434160	361800
470340	405216

∴ correct answer = 405216

Wrong answer = 470340

Clearly 470340 is greater than 405216

Now 470340

− 405216

65124

Hence , the wrong answer was 65124 greater than the correct answer

26) Give reasons for the following :

a) A square can be thought of as a special rectangle.

b) A rectangle can be thought of as a special parallelogram.

c) A square can be thought of as a special rhombus.

d) Squares, rectangles, parallelograms are all quadrilaterals

Sol.

(a) In a rectangle opposite sides are equal and all angles are equal (each 90°). In a square all sides and all angles are equal. Hence we can say that a rectangle with equal sides is a square. Therefore a square is a special rectangle.

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(b) In a parallelogram opposite sides are equal and also opposite angles are equal. In a rectangle opposite sides are equal and all angles are equal. Hence we can say that a parallelogram with its all angles equal is a rectangle. Therefore a rectangle is a special parallelogram.

(c) A rhombus has all its sides equal and opposite angles equal. In a square all the sides and the all the angles are equal. Hence a rhombus with all its angles equal is a square. Therefore a square is a special rhombus.

(d) Squares, rectangles, parallelograms are all four sided polygons. Hence they are all quadrilaterals.

27) Two brands of chocolates are available in packs of 24 and 15 respectively. If I need to buy an equal number of chocolates of both kinds, what is the least number of boxes of each kind I would need to buy?

Sol. Let the brand 'A' contains 24 chocolates in one packet and brand 'B' contain 15 chocolates in one packet.

We need to find the L.C.M of 15 and 24

2	15, 24
2	15, 12
2	15, 6
3	15, 3
5	5, 1
	1, 1

Required LCM = 2 × 2 × 2 × 3 × 5 = 120

Therefore, minimum 120 chocolates of each kind should be purchased.

Number of boxes of Brand 'A' which needs to be purchased = 120 ÷ 24 = 5

Number of boxes of Brand 'B' which needs to be purchased = 120 ÷ 15 = 8