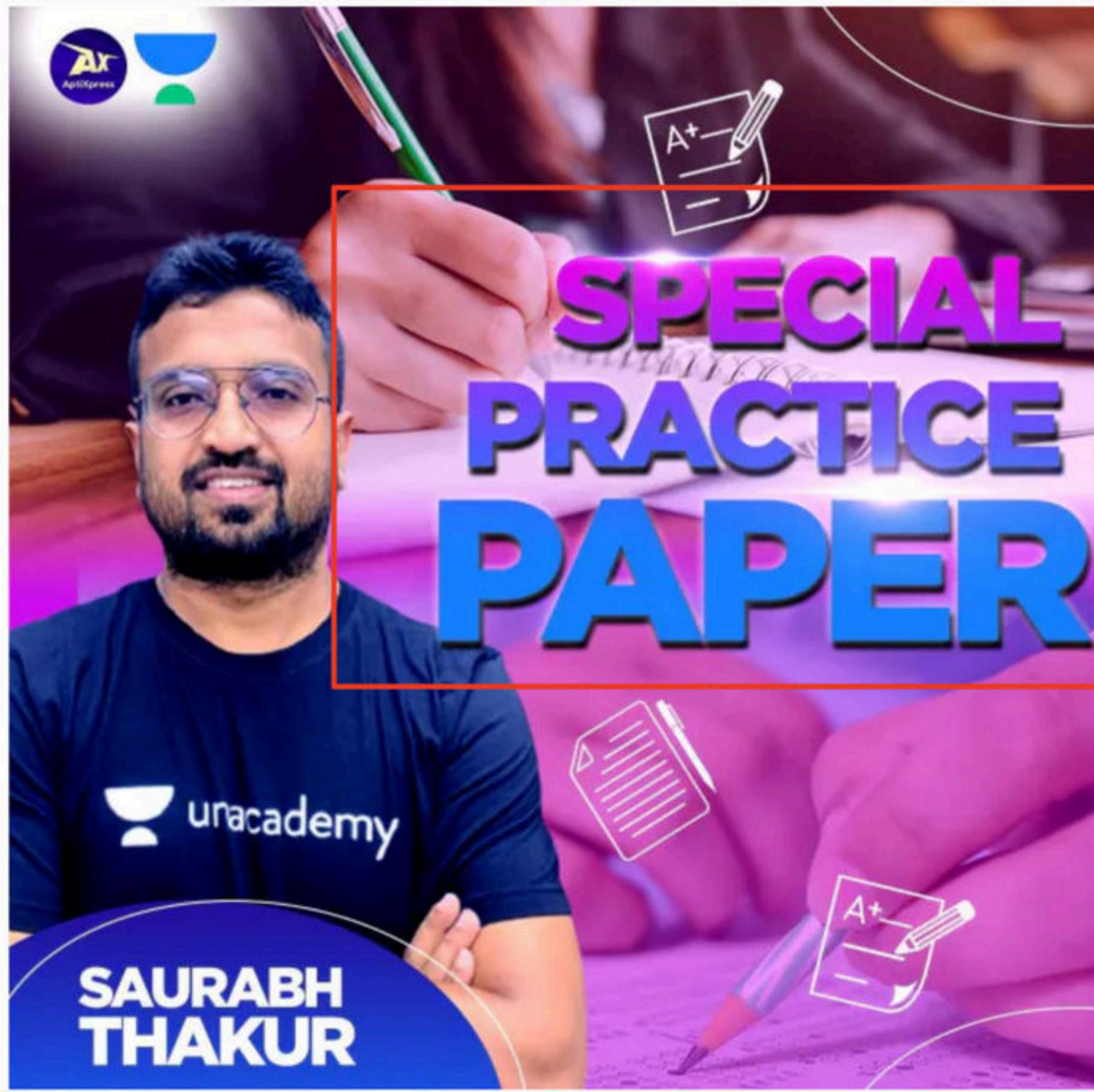




SPECIAL PRACTICE PAPER

SAURABH
THAKUR



NUMBER SYSTEM

START

Which of the following numbers will replace the question mark (?) in the series given below?

25, 336, 24, ?, 23, 120, 22, 60

108

210

216

196



ANS.- (B) The given series is an alternate series.

Odd series, i.e. first series is with the numbers decreasing, i.e. 25, 24, 23.

In the even series, i.e. second series, the pattern is as given below:

$$7^3 - 7 = 343 - 7 = 336$$

So, the answer will be:

$$6^3 - 6 = 216 - 6 = 210$$

Which of the following will replace the question mark (?) in the series given below?

9999, 8099, 6399, 4899, ?, 2499

3999

3499

3599

2999



ANS.- (B)

The series is of pattern $n^2 - 1$. n starts from 100 and then, decreases by 10 for the next term.

$$100^2 - 1 = 9999$$

$$90^2 - 1 = 8099$$

$$80^2 - 1 = 6399$$

$$70^2 - 1 = 4899$$

$$60^2 - 1 = 3599$$

$$50^2 - 1 = 2499$$

So, the answer is 3599.



Which of the following numbers will replace the question mark (?) in the series given below?

0, 1, 5, 23, 119, 719, ?

2499

5040

2500

5039

(



ANS.- (D) The series is as given below.

$$(1 \times 1) - 1 = 0$$

$$(1 \times 2) - 1 = 1$$

$$(1 \times 2 \times 3) - 1 = 5$$

$$(1 \times 2 \times 3 \times 4) - 1 = 23$$

$$(1 \times 2 \times 3 \times 4 \times 5) - 1 = 119$$

$$(1 \times 2 \times 3 \times 4 \times 5 \times 6) - 1 = 719$$

$$(1 \times 2 \times 3 \times 4 \times 5 \times 6 \times 7) - 1 = 5039$$



Which of the following numbers will replace the question mark (?) in the series given below?

11, 2, 13, 4, 17, 8, 19, 16, 23, 32, 29, ?

64

60

32

30



ANS.- (A)

The given series is an alternate series.

Odd series, i.e. first series starts with prime numbers, starting from 11 and so on.

Even series, i.e second series follows the pattern given below:

$$2 \times 2 = 4$$

$$4 \times 2 = 8$$

$$8 \times 2 = 16$$

$$16 \times 2 = 32$$

$$32 \times 2 = 64$$

Choose the option that will replace the question mark (?) in the series given below.

5, 40, 15, ?, 25, 120, 35, 160, 45

70

20

60

80



ANS.- (D) The given series has two sub series:

First series: $5 \times 1, 5 \times 3, 5 \times 5, 5 \times 7, 5 \times 9$

Second series: $40 \times 1, 40 \times 2, 40 \times 3, 40 \times 4$

Therefore, missing number is $40 \times 2 = 80$

Which of the following options will replace the question mark (?) in the series given below?

321, 14, 322, 17, 323, ?, 324, 29

20

21

22

25



ANS.- (C) $321 = 3^2 + 2^2 + 1^2 = 14$

$$322 = 3^2 + 2^2 + 2^2 = 17$$

$$323 = 3^2 + 2^2 + 3^2 = 22$$

$$324 = 3^2 + 2^2 + 4^2 = 29$$

Which of the following will replace the question mark (?) in the series given below?

10, 122, 11, 145, 12, 170, 13, 197, 14, ?

226

225

220

221



ANS.- (A)

The given series is an alternate series. The first series is 10, 11, 12 ... and the second series follows the pattern given below.

$$(10 + 1)^2 + 1 = 122$$

$$(11 + 1)^2 + 1 = 145$$

$$(12 + 1)^2 + 1 = 170$$

$$(13 + 1)^2 + 1 = 197$$

$$(14 + 1)^2 + 1 = 226$$



Which of the following will replace the question mark (?) in the series given below?

1, 1, 2, 4, 8, 3, 9, 27, 5, 16, 64, ?

6

7

8

25



ANS.- (B)

Here, the first two numbers are 1^2 and 1^3 and then, prime numbers follow.

$(1)^2$ and $(1)^3$, then prime number 2, then $(2)^2$ and $(2)^3$ is followed by prime number 3, then $(3)^2$ and $(3)^3$ is followed by prime number 5 and then, $(4)^2$ and $(4)^3$.

So, the next prime number will be 7.



Which of the following will replace the question mark (?) in the series given below?

9, 35, 91, 189, 341, ?

592

541

512

559

ANS.- (D) $1^3 + 2^3 = 9$

$$2^3 + 3^3 = 35$$

$$3^3 + 4^3 = 91$$

$$4^3 + 5^3 = 189$$

$$5^3 + 6^3 = 341$$

$$6^3 + 7^3 = 559$$



Find the wrong number in the series given below.

4, 18, 48, 100, 180, 294, 442

48

100

180

294

442



ANS.- (E) $2^3 - 2^2 = 8 - 4 = 4$

$$3^3 - 3^2 = 27 - 9 = 18$$

$$4^3 - 4^2 = 64 - 16 = 48$$

$$5^3 - 5^2 = 125 - 25 = 100$$

$$6^3 - 6^2 = 216 - 36 = 180$$

$$7^3 - 7^2 = 343 - 49 = 294$$

$$8^3 - 8^2 = 512 - 64 = 448$$

So, the wrong number is 442, which should have been 448.



Directions: One term in the given number series is incorrect. Find out the incorrect term.

37, 47, 52, 67, 87, 112, 142

47

52

67

112



ANS.- (A) Numbers are being added as:

$$+ (5 \times 1), + (5 \times 2), + (5 \times 3), + (5 \times 4), + (5 \times 5), \dots$$

So, starting from 37 and following the above pattern, we get

$$37 + 5 = 42$$

$$42 + 10 = 52$$

$$52 + 15 = 67$$

$$67 + 20 = 87, \text{ and so on}$$

So, the wrong number is 47, which should have been 42.



Directions: Find out the wrong term in the given series.

6, 17, 50, 105, 182, 281, 403

17

105

182

403



ANS.- (D) Numbers are being added as follows.

+ (11×1) , + (11×3) , + (11×5) , + (11×7) , + (11×9) and + (11×11) .

So, starting from 6 and following the above pattern, we get

$6 + 11 = 17$, $17 + 33 = 50$, $50 + 55 = 105$, ...

$281 + (11 \times 11) = 402$

So, the wrong number is 403, which should have been 402.

Find the wrong number in the series given below.

1, 5, 14, 30, 56, 91

5

14

30

56



ANS.- (D) The pattern is given below:

$$1 + 2^2 = 1 + 4 = 5$$

$$5 + 3^2 = 5 + 9 = 14$$

$$14 + 4^2 = 14 + 16 = 30$$

$$30 + 5^2 = 30 + 25 = 55$$

$$55 + 6^2 = 55 + 36 = 91$$

Therefore 56 is wrong because in place of 56 it should be 55.

Directions: Find out the wrong term in the given series.

1050, 420, 168, 67.2, 26.88, 9.75

420

168

67.2

26.88

9.75



ANS.- (E) $\frac{1050}{2.5} = 420$

$$\frac{420}{2.5} = 168$$

$$\frac{168}{2.5} = 67.2$$

$$\frac{67.2}{2.5} = 26.88$$

$$\frac{26.88}{2.5} = 10.752$$

So, the wrong number is 9.75, which should have been 10.752.

What should come in place of the question mark in the following number series?

4, 8, 6, 18, 10, 50, ?, 98

15

14

12

11



The given series is an alternate series. Odd series is double of consecutive prime numbers.
i.e.

$$2 \times 2 = 4$$

$$3 \times 2 = 6$$

$$5 \times 2 = 10$$

$$7 \times 2 = 14$$

ANS.- (B)

Even series is as:

$$\frac{4^2}{2} = 8$$

$$\frac{6^2}{2} = 18$$

$$\frac{10^2}{2} = 50$$

$$\frac{14^2}{2} = 98$$



CRITICAL REASONING





Directions: The question below is followed by arguments numbered I and II. You have to decide which of the given arguments is/are 'strong'.

Question: Should the fees of all private unaided colleges be made equal to those of government aided colleges?

Arguments:

- I. No, private colleges need additional funds to maintain quality of education they claim to provide.
- II. No, they have limited seats and in order to maintain diversity in the campus they need rich students from across the globe.

- Both I and II are strong.
- Either I or II is strong.
- Only I is strong.
- Only II is strong.
- Neither I nor II is strong.

ANS.- (C)

I is strong since it is stated that private colleges are unaided. Hence, it will be difficult for them to lower the fees to match those of government aided colleges, even for carrying out routine operations.

Also, private colleges compete in the education market, with each claiming to provide something better or additional or unique; hence, they need adequate funds to maintain the quality of education they claim to provide.

II is not a strong reason. Though it is true that private colleges have limited seats and only those who can afford the colleges would be granted admission, the purpose of charging a high fee is not to enable diversity, as students from a particular geographic location may be well-off enough to exhaust all the seats.



Directions: The question below is followed by arguments numbered I and II. You have to decide which of the given arguments is/are 'strong'.

Question: Should the Press in India be given full freedom?

Arguments:

- I. Yes, because only then people will become politically enlightened.
- II. No, because full freedom to press will create problems.

- Only I is strong.
- Either I or II is strong.
- Only II is strong.
- Neither I nor II is strong.
- Both I and II are strong.



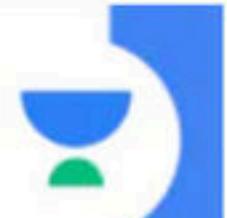
ANS.- (D)

Political enlightenment is not the main motive of the media. So, the first argument is not strong enough.

Media is there to provide correct and impartial news.

The second argument restricts the working of the press as an independent and impartial medium. Moreover, it does not mention the kind of problems that freedom to press can create.

Both the arguments are weak.



Directions: In the question, a statement is followed by two assumptions numbered I and II. An assumption is something supposed or taken for granted. Consider the statement and the following assumptions and mark your answer as

Statement:

Bank 'A' has announced reduction of half percentage on the interest rate on retail lending with immediate effect.

Assumptions:

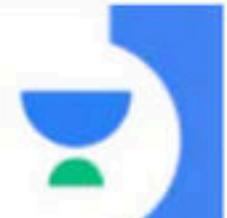
- I. Other banks may also reduce their retail lending rates to be in competition.
- II. Bank 'A' aims to attract more customers to avail its retail loans.

- Only assumption I is implicit.
- Either assumption I or II is implicit.
- Only assumption II is implicit.
- Neither assumption I nor II is implicit.
- Both assumptions I and II are implicit.



ANS.- (C)

I is a consequence in response to Bank A's action. Thus, it is not an assumption on which the given statement may be based. Only II is implicit as any offer is to attract customers.



Directions: The question below is followed by two arguments numbered I and II. You have to decide which of the given arguments is/are 'strong'.

Should the oil companies be allowed to fix the price of petroleum products depending on market conditions?

Arguments:

- I. Yes, this is the only way to make the oil companies commercially viable.
II. No, this will put additional burden on the retail prices of essential commodities and will cause a lot of hardships to the masses.

- Only I is strong.
- Neither I nor II is strong.
- Either I or II is strong.
- Only II is strong.
- Both I and II are strong.



ANS.- (D)

The mention of "only way" makes statement I incorrect. The statement does not imply that no other solution is possible. If this is allowed, oil prices would increase drastically. The second statement correctly sums up the condition and presents a strong argument to the question. Oil or petroleum products are used in almost all commodities in one way or the other. Thus, change in oil prices would lead to change in prices of the essential commodities too.



Directions: The question below is followed by two arguments numbered I and II. You have to decide which of the given arguments is/are 'strong'.

Question: Should all the profit making public sector units be sold to private companies?

Arguments:

- I. Yes, as this will help the Government to augment its resources for implementing the development programmes.
- II. No, as the private companies will not be able to run these units effectively.

- Only argument II is strong.
- Only argument I is strong.
- Either argument I or II is strong.
- Neither argument I nor II is strong.
- Both arguments I and II are strong.



ANS.- (D)

The first statement is a weak argument as the stated public sector units are already making profit, hence, there is no reason to invite private intervention. The second statement is quite weak and can be easily challenged in matter of capability of private companies.



Directions: The question below is followed by arguments numbered A, B and C. You have to decide which of the given arguments is/are 'strong'.

Question: Should road repair work in big cities be carried out only late at night?

Arguments:

- (A) No, this way, the work will never get completed.
- (B) No, there will be unnecessary use of electricity.
- (C) Yes, the commuters will face a lot of problems due to repair work during the day.

- None is strong.
- Only (A) is strong.
- Only (C) is strong.
- Only (B) and (C) are strong.
- Only (A) and (B) are strong.



ANS.- (C)

Statements (A) and (B) are weak. Unnecessary use of electricity is not a strong reason to obstruct the work in the night, if it is required, and 'will never get completed' makes (A) incorrect. Statement (C) is strong as it gives a solid reason not to work during the day.



Directions: In this item, a question is followed by three arguments labelled A, B and C. You have to decide which of the given arguments is/are 'strong'.

Question: Should there be a restriction on the construction of high rise buildings in big cities in India?

Arguments:

- (A) No, big cities in India do not have adequate open land plots to accommodate the growing population.
- (B) Yes, only the builders and developers benefit from the construction of high rise buildings.
- (C) Yes, the Government should first provide adequate infrastructural facilities to existing buildings before allowing the construction of new high rise buildings.

- Only (B) is strong.
- Only (C) is strong.
- Both (A) and (C) are strong.
- Only (A) is strong.
- None of these



ANS.- (C)

Statement (B) is weak. 'Builders and developers benefit' is not an adequate reason to impose restriction on the construction of high rise buildings in big cities. Statements (A) and (C) are strong. Hence, option (3) is the correct answer.



Directions: In the following problem, a question is given, followed by two arguments I and II. You have to decide which of the given arguments is/are 'strong' and mark the correct option accordingly.

Question: Should the government stop giving subsidy to loss-making public sector units?

Arguments:

- I. Yes, as subsidies can never cure the ailment in loss-making public sector units.
- II. No, as public sector units have carved out a niche for themselves in India's developmental process and they should be sustained at all costs.

- Both arguments are strong.
- Either argument I or II is strong.
- Only argument I is strong.
- Only argument II is strong.
- Neither argument I or II is strong.



ANS.- (B)

Both the given arguments are strong; however, as both these contrast each other these can't be simultaneously true.



ANS.- (A)

I is strong because higher rates attract people to deposit money for longer duration. If there will be only one rate of interest for term deposits for varying durations, this will adversely affect deposit of money in banks for longer duration and also the liquidity levels of banks. II is not strong because only one rate of interest does not encourage people for more savings.



Directions: In the item given below, a question is followed by two arguments numbered I and II. You have to decide which of the given arguments is/are 'strong'.

Question: Should all the drugs patented and manufactured in western countries be first tried out on sample basis, before giving license for sale to general public in India?

Arguments:

- I. Yes, many such drugs require different doses and duration for Indian population and hence, it is necessary.
- II. No, this is just not feasible and hence, cannot be implemented.

- Only argument I is strong.
- Only argument II is strong.
- Either I or II is strong.
- Neither I nor II is strong.
- Both I and II are strong.



ANS.- (A)

Argument I is strong as physiology of Indian patients could be different from that of people in western countries.

Argument II is weak because nothing can be more important than public health. Moreover, it does not logically explain why it is not feasible.

Number System





What is the total number of factors of 3360?

a. 40

b. 48

c. 34

d. 56



ANS.- (B)

$$\text{Factors of } 3360 = 16 \times 15 \times 14 = 2^5 \times 3 \times 5 \times 7$$

Total number of factors of 3360

$$= (5 + 1) \times (1 + 1) \times (1 + 1) \times (1 + 1)$$

$$= 6 \times 2 \times 2 \times 2 = 48.$$



How many odd factors are there for the 3-digit number 'bbb' where 'b' is the smallest prime number?

a. 8

b. 27

c. 9

d. 4



ANS.- (D)

We can write $b b b = b \times 37 \times 3$

Now $b= 2$ since 2 is the smallest prime number

Now, number of odd factor $= 2 \times 2 = 4$

Hence, option (4) is the correct choice.



If 'p' is the remainder when $27 \times 31 \times 35$ is divided by 20 and 'r' is the remainder when $17 \times 21 \times 25$ is divided by 10, then what will be the remainder left when 'p' is divided by 'r'?

a. 7

b. 0

c. 5

d. 2



ANS.- (B)

$$p = 7 \times (-9) \times (-5) \Rightarrow 7 \times (45) \Rightarrow 7 \times 5 \Rightarrow 35 \\ \Rightarrow 15$$

$$r = (-3)(1)(-5) \Rightarrow 15 \Rightarrow 5$$

p when divided by r will leave a remainder zero

Alternative solution:

$27 \times 31 \times 35$ will have a unit digit of 5 and hence when divided by 20 will leave either 15 or 5 as remainder.

So, p = 5 or 15

$17 \times 21 \times 25$ will have a unit digit of 5 and hence when divided by 10 will leave 5 as remainder.

So, r = 5

Hence p must be divisible by r



What is the remainder when $445 \times 460 \times 475 \times 490$ is divided by 33?

a. 0

b. 32

c. 19

d. 1



ANS.- (D)

The remainders when 445,460, 475 and 490 are divided by 33 are 16, 31,13 and 28.

The net product of the remainders = $16 \times 31 \times 13 \times 28 = 16 \times (-2) \times 13 \times (-5) = 2080$

The number 2080 when divided by 33 leaves the remainder 1.

The remainder when 33^{34} is divided by 35 is

a. 2

b. 9

c. 1

d. 0





ANS.- (B)

The remainder when 33^{34} is divided by 35 is the same as the remainder when $(-2)^{34}$ is divided by 35. Now, using Remainder Theorem,

$$(-2)^{34} = 4^{17} = (4^4)^4 \times 4 = (256)^4 \times 4$$

When 256 is divided by 35, the remainder is 11.

$$\Rightarrow 11^4 \times 4 = 121^2 \times 4$$

When 121 is divided by 35, the remainder is 16.

$$\Rightarrow 16^2 \times 4 = 256 \times 4 = 1024$$

When 1024 is divided by 35, the remainder is 9

The average of the first 5 prime numbers is

a. 3.4

b. 4.6

c. 5.6

d. 5.8



ANS.- (C)

$$\text{Required average} = \frac{2+3+5+7+11}{5} = \frac{28}{5} = 5.6.$$



Which of the following is the least positive integer which must be added to 2690 to get a perfect cube?

a. 53

b. 321

c. 54

d. 545

ANS.- (C)

$$2690 + 54 = 14^3.$$

Find the remainder when $x^{79} + y^{79}$ is divided by 200, if $x + y = 100$ and x and y are even integers.

- a. 100
- b. 0
- c. 99
- d. Cannot be determined



ANS.- (B)

$x^{79} + y^{79} = (x + y) \times (x^{78} + \dots + y^{78})$. Second bracket will always be even as x and y are even and $x + y$ is 100 (Given). Hence, the product is a multiple of 200. Thus, the remainder will be 0 when divided by 200.



A number when divided by a divisor leaves a remainder 44. When thrice the original number is divided by the same divisor, the remainder is 12. What could be the value of the divisor?

a. 30

b. 60

c. 75

d. 76



ANS.- (B)

Let the original number and the divisor be N and d respectively, then

$$N = kd + 44 \quad (\text{where } k \text{ is the natural number})$$

$$\Rightarrow 3N = 3kd + 132 = (3kd + 120) + 12$$

\therefore Divisor is the factor of 120 but in first case remainder is 44, therefore divisor should be greater than 44.

And the factor of 120 greater than 44 is 60 and 120.



A three-digit positive number 'X' is in the decimal system. 'X' is equal to cube of its unit digit and also equal to the square of a two-digit positive number formed by its other two digits. Find the sum of the digits of 'X'.

- a. 21
- b. 18
- c. 15
- d. None of these



ANS.- (B)

$$\begin{aligned} \text{Here 'X'} &= 100a + 10b + c \\ \Rightarrow 100a + 10b + c &= c^3 \\ \Rightarrow 10(10a + b) &= c(c^2 - 1) \\ \Rightarrow 10(10a + b) &= c(c - 1)(c + 1) \\ \text{So, } c + 1 \text{ has to be } 10 \\ \text{Therefore } c + 1 &= 10 \\ \Rightarrow c &= 9 \\ \text{Hence } X &= 729 \\ \text{Sum is } 7 + 2 + 9 &= 18 \end{aligned}$$

How many values can 'n' take, such that 2^n is exactly divisible by n^2 ?

- (A) 2
- (B) 1
- (C) 0
- (D) Infinite



ANS.- (D) If $n = 1$, 2^1 is divisible by 1^2

$n = 2$, 2^2 is divisible by 2^2

$n = 4$, 2^4 is divisible by 4^2

$n = 8$, 2^8 is divisible by 8^2

$n = 16$, 2^{16} is divisible by 16^2

And so on...

So, 'n' can take infinite values, such that 2^n is exactly divisible by n^2 .



What is the remainder when $1923^{1924^{1925}}$ is divided by 1924?

- (A) 1922
- (B) 1923
- (C) 1
- (D) 0



ANS.- (C)

$$\frac{1923^{1924^{1925}}}{1924} = \frac{(1924 - 1)^{1924^{1925}}}{1924}$$

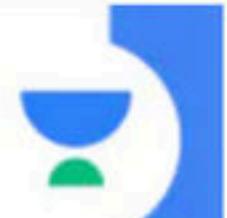
$$= \frac{(-1)^{1924^{1925}}}{1924}$$

= 1 (remainder) as $(-1)^{\text{even number}} = 1$



If $N = (11111111)^2$, then what is the sum of the digits of N ?

- (A) 54
- (B) 62
- (C) 64
- (D) 68



ANS.- (C)

$$1^2 = 1, 11^2 = 121, 111^2 = 12321, 1111^2 = 1234321 \text{ and } 11111^2 = 123454321$$

$$\Rightarrow 11111111^2 = 123456787654321$$

The sum of the digits of given number is 64.

Answer: (3)



Find the last digit of the following expression.

$$(15)^{256} + (19)^{138} + (32)^{97}$$

- (A) 8
- (B) 6
- (C) 5
- (D) 3



ANS.- (A)

Unit digit of $(15)^{256}$ = 5.

As any number with 5 at the units place will always have a 5 at its units place, irrespective of the positive natural number power.

Now, $9^1 = 9$, $9^2 = 81$, $9^3 = 729$, $9^4 = 6561$

So, basically, a number with 9 at its units place raised to an even number, will have 1 at its units place and a number with 9 at its units place raised to an odd number, will have 9 at its units place.

Thus, the units digit of 19^{138} is a 1.

Now, $2^1 = 2$, $2^2 = 4$, $2^3 = 8$, $2^4 = 16$ and $2^5 = 32$

So, basically after every 4th power, the units digit repeats itself.

Now, $97 = 96 + 1 = 24 \times 4 + 1$

Thus, we have 24 sets of 4 and then 1 more.

So, the number should have 2 at the units place.

Thus, the digit at the units place is $5 + 1 + 2 = 8$

Hence, option 1 is correct.



How many multiples of 32 are perfect squares, less than 10^4 ?

- (A) 14
- (B) 13
- (C) 12
- (D) 3



ANS.- (C)

The least multiple of 32, which is a perfect square is $32 \times 2 = 64$.

So, all the numbers of the form $64k$ (where k is a perfect square) are perfect squares.

i.e. $64 \times 1^2, 64 \times 2^2, 64 \times 3^2, 64 \times 4^2, \dots 64 \times 12^2$

If we take 64×13^2 ;

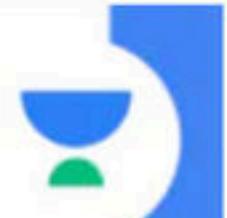
$$64 \times 169 > 10^4$$

So, total 12 numbers are there.



Let D be a decimal of the form $D = 0.\overline{abcdabcdabcd\dots}$, where the digits a, b, c and d are integers lying between 0 and 9. At most three of these digits are zero. By what number should D be multiplied so that the result is a natural number?

- (A) 999
- (B) 9990
- (C) 49995
- (D) 499995



ANS.- (C)

$$D = 0.\underline{abcdabcdabcd\dots}$$

$$10000D = \underline{abcd}.abcdabcd\dots$$

$$10000D - D = (\underline{abcd}.abcdabcd\dots) - (0.\underline{abcdabcdabcd\dots})$$

$$9999D = \underline{abcd}$$

$$D = \frac{\underline{abcd}}{9999}$$

From the options, 49995 is the only multiple of 9999.

$$49995 = 9999 \times 5$$

Hence, once we multiply D with 49995, we will get a natural number.

Find the last two digits of $25^{63} \times 63^{25}$.

- (A) 85
- (B) 75
- (C) 55
- (D) 45





ANS.- (B)

The last two digits of 25^{63} are always 25.

Last two digits of $63^{25} = (3^4 \times 6)3 = (81)^6 \times 3 = 481 \times 3 = 243$ (An even number digit) 3

(Tens digit of any power of a number, whose units digit is odd and tens digit is even, is always even.)

Thus, the last two digits of $25^{63} \times 63^{25}$ will be given by 25×43 (where a is even).

So, 75 is the required answer.

How many two-digit numbers have exactly five factors?

- (A) 0
- (B) 1
- (C) 2
- (D) 3



ANS.- (C)

The number which has five factors should be of the form a^4 .

Such two-digit numbers are 2^4 and 3^4 .

Permutation and Combination & Probability



A bag contains 4 blue, 3 green, 3 white and 5 black marbles. If two marbles are picked at random, what is the probability that both are green or both are black?

- 17/91
- 11/109
- 9/101
- 13/105

Ans - (D)

Given:

There are 4 blue, 3 green, 3 white and 5 black marbles in the bag.

Concept Used:

$${}^x C_y = \frac{x!}{y! \times (x-y)!}$$

Probability of an event = Desire event/ Total possible number of events

Since the question is asking about any of the two possibilities, using the "or" logical operator, we can add together the odds for both are green marbles or both are black marbles.

Calculations:

Number of ways of drawing two marbles = ${}^{15} C_2$

Probability of drawing two green or two black marbles = ${}^3 C_2 + {}^5 C_2$

$$\Rightarrow \text{Probability} = ({}^3 C_2 + {}^5 C_2) / {}^{15} C_2 = 13/105$$

∴ The probability that both are green or both are black is 13/105.



A drawer contains 100 bolts and 200 nuts. Half of the bolts and half of the nuts are rusted. If one item is chosen at random, find the probability that chosen item is rusted or bolt?

- $\frac{2}{3}$
- $\frac{2}{8}$
- $\frac{1}{8}$
- $\frac{7}{8}$



Ans - (A)

Given:

Number of bolts = 100

Number of nuts = 200

Formula Used:

$$P(A \cup B) = P(A) + P(B) - P(A \cap B)$$

Calculations:

Let $P(A)$ is the probability that the chosen item is rusted and $P(B)$ is the probability that the chosen item is bolt

$$\therefore P(A) = \frac{150}{300}, P(B) = \frac{100}{300}, P(A \cap B) = \frac{50}{300}$$

$$\Rightarrow P(A \cup B) = \frac{150}{300} + \frac{100}{300} - \frac{50}{300}$$

$$\Rightarrow P(A \cup B) = 2/3$$

\therefore Probability that the chosen item is rusted or bolt is $2/3$

NOTE: $P(A \cap B)$ is the probability that the chosen item is rusted and bolt



In how many different ways can the letters of the word 'CATARRH' be arranged?

- 5040
- 1260
- 2520
- 1240



Ans - (B)

Given:

The given word = 'CATARRH'

Concept used:

If a word has n letters, then the number of different ways to arrange the letter is

Case1:- When no repetition of letters takes place = $n!$

Case2:- When $r_1, r_2, r_3, \dots, r_n$ repeated letters = $n!/(r_1! r_2! \dots r_n!)$

Calculation:

The given word = 'CATARRH'

Number of letters = 7

Number of repeated letters, 'A' occurs 2 times , 'R' occurs 2 times

$$\Rightarrow r_1 = 2, r_2 = 2,$$

$$\Rightarrow \text{Number of different ways} = 7!/(2! 2!) = (7 \times 6 \times 5 \times 4 \times 3)/2 = 1260$$

∴ The number of different ways to arrange 'CATARRH' is 1260



A coin is tossed two times one after the other. Find the probability of getting exactly one tail?

1/4

1/3

3/4

1/2



Ans - (D)

Concept used:

Probability = (number of event)/(sum of total event)

Calculation:

A coin is tossed two times one after the other.

number of event = HH, TT, HT, TH

where H = head and T = tail

Exactly one tail = HT and TH

Number of events = 2

Sum of total events = 4

∴ Probability is $2/4$ is $1/2$

A bag contains 5 red and 4 black balls. Four balls are drawn at random. In how many ways can we draw, so that there are exactly 2 red balls

- 48
- 24
- 36
- 60



Ans - (D)

Given:

There are 5 red and 4 black balls in the bag.

Concept Used:

Probability of an event = Desire event/ Total possible number of events

$${}^x C_y = \frac{x!}{y! \times (x-y)!}$$

Calculations:

Total balls in the bag = $5 + 4 = 9$

Four balls are drawn at random,

Out of 9 balls, 2 balls will be exactly red and other 2 balls will be black

It can be possible in $({}^5 C_2 \times {}^4 C_2)$ ways

$$\Rightarrow [(5!)/(2! \times 3!)] \times [(4!)/(2! \times 2!)]$$

$$\Rightarrow 5 \times 2 \times 6$$

$$\Rightarrow 60$$



In a box there are 6 blue balls, X red balls and 10 green balls. Probability of choosing one red ball from the given box is $1/3$. Find the sum of red and blue balls in the box.

- 20
- 18
- 12
- 14



Ans - (D)

Calculation:

Probability of getting red ball = Number of red balls/Total number of balls

Calculation:

Total balls in the box= $6 + X + 10 = X + 16$.

Probability of getting red ball = $X/(X + 16)$

According to question:

$$X/(X + 16) = 1/3$$

$$\Rightarrow X = 8$$

\therefore The sum of red and blue balls in the box = $8 + 6 = 14$



Two cards are drawn from the pack of 52 cards. What is the probability that they are kings?

- $\frac{100}{221}$
- $\frac{220}{221}$
- $\frac{15}{221}$
- $\frac{1}{221}$

Ans - (D)

Let S be the sample space

$$\text{Then, } n(S) = {}^{52}C_2 = (52 \times 51)/(2 \times 1) = 1326$$

Let E = event of getting 2 kings out of 4.

$$n(E) = {}^4C_2 = (4 \times 3)/(2 \times 1) = 6$$

$$\therefore P(E) = n(E)/n(S) = 6/1326$$

$$\therefore P(E) = 1/221$$



Two dice are thrown simultaneously. What is the probability of getting two numbers whose product is odd?

- $\frac{1}{6}$
- $\frac{1}{4}$
- $\frac{3}{4}$
- $\frac{1}{2}$



Ans - (B)

Each dice has numbers from 1 to 6

Two Dice are thrown

Possible outcomes = $6 \times 6 = 36$

Now,

getting two numbers whose product is odd,

Probability of getting odd number in each dice = $3/6 = 1/2$

Probability of getting two numbers whose product is odd = $(1/2) \times (1/2)$

∴ Probability of getting two numbers whose product is odd = $1/4$

What is the probability of choosing a vowel from English alphabet?

- 0
- 1
- $\frac{21}{26}$
- $\frac{5}{26}$





Ans - (D)

Formula Used:

$$P(E) = \text{Favorable outcomes} / \text{Total outcomes}$$

Where $P(E) \rightarrow$ Probability of an event (E)

Calculation:

Total number of English alphabet = 26

Total number of vowel = 5 = (a, e, i, o, u)

$$P(\text{getting vowel}) = \text{Favorable outcomes} / \text{Total outcomes}$$

$$\Rightarrow 5/26$$

∴ The probability of choosing a vowel from English alphabet is $5/26$.



How many possible ways are there in creating a 3 digit pin using the digits 1-9 when repetition is allowed

729

512

1331

64



Ans - (A)

The first place can be filled in 9 ways ,

∴ repetition is allowed , the second and third place can be filled in 9 ways

∴ the total number of ways is 9^3 i.e 729

Speed, Time and Distance





Train covered certain distance with certain time. If $(1/3)$ rd of the distance is covered by train in $(1/4)$ th of time. Then, find the ratio of this speed to the original speed.

- 1 : 2
- 2 : 3
- 4 : 3
- 4 : 5

Ans : (C)

Given:

(1/3)rd of the total distance is covered in (1/4)th of a time

Formula used:

Speed = distance/ time

Calculation:

Let the distance covered is d km and time is t hours.

$$\text{Ratio of speed} = [(d/3)/(t/4)]/[(d/t)]$$

$$= [(4dt/3td)]$$

$$= 4 : 3$$



Train P is travelling at a speed of 90 km/h. It takes 5 seconds to enter into a tunnel and 50 seconds to pass through the tunnel. Find the length of the tunnel.

- 1234 metres
- 1125 metres
- 2451 metres
- 1267 metres



Ans : (B)

Given:

Speed of train P = 90 km/h = 25 m/s

Time taken to cross a tunnel = 50 seconds

Calculation:

Let the length of a train is x metres.

$$\text{Speed} = x/5$$

$$25 = x/5$$

$$\Rightarrow 125 \text{ m} = x$$

Let the length of a tunnel is ' L ' metres.

$$\Rightarrow (125 + L)/25 = 50$$

$$\Rightarrow 125 + L = 1250$$

$$\Rightarrow L = 1250 - 125$$

$$\Rightarrow L = 1125 \text{ metres.}$$



A man traveled to Goa by boat. The speed of the boat and speed of the current is 22 km/hr and 8 km/hr respectively. If he stays there for 2 hrs, find the total distance traveled by him if he completed his stay and journey in $49\frac{1}{7}$ hrs.

- 500 km
- 450 km
- 800 km
- 900 km



Speed of boat = 22 km/hr

Ans : (D)

Speed of current = 8 km/hr

Time taken to complete the journey = $49\frac{1}{7}$ hr = $344/7$ hr

Concept used:

If the speed of boat in still water is 'x' km/hr and speed of stream is 'y' km/hr, then:

Upstream speed = Speed of boat - Speed of stream = $(x - y)$

Downstream speed = Speed of boat + Speed of stream = $(x + y)$

Calculations:

Time taken by him to cover the journey = $(344/7) - 2 = 330/7$

Let the distance travelled by the man be x

\therefore Time = Distance/Speed

$$\Rightarrow \{x/(22 + 8) + x/(22 - 8)\} = 330/7$$

$$\Rightarrow x/30 + x/14 = 330/7$$

$$\Rightarrow (7x + 15x)/210 = 330/7$$

$$\Rightarrow 22x/210 = 330/7$$

$$\Rightarrow x = 450$$

\therefore Total distance travelled by the man = $450 + 450 = 900$ km



A 500 m long train crosses a man moving in same direction with a speed of 8 km/hr in 40 sec. Now a motorcycle is moving towards it from opposite direction it took 20 sec for the bike to cross the train. Calculate the speed of bike (km/hr).

- 37
- 40
- 50
- 25



Given:

Ans : (A)

Length of train = 500 m

Speed of man = 8 km/hr

Calculations:

Let the speed of train be v_1

Speed of bike be v_2

Length of train = 500 m = 0.5 km

Time taken by the train to cross the man = 40 sec = $40/3600$ hr

\therefore Speed of train

$$\Rightarrow 0.5/(v_1 - 8) = 40/3600$$

$$\Rightarrow 45 = v_1 - 8$$

$$\Rightarrow 53 = v_1$$

Now, train takes 20 sec to cross a bike coming from opposite direction

$$\Rightarrow 0.5/(53 + v_2) = 20/3600$$

$$\Rightarrow 90 = 53 + v_2$$

$$\Rightarrow 37 = v_2$$

\therefore Speed of bike = 37 km/hr



How many seconds will a 700-meter long train take to cross a man walking with a speed of 14 km/hr in the direction of the moving train if the speed of the train is 140 km/hr?

- 14 seconds
- 26 seconds
- 24 seconds
- 20 seconds

Ans : (D)

Given

Speed of train = 140 km/hr

Speed of man = 14 km/hr

Formula used

Relative speed = Higher speed – Lower speed (if both are moving in same direction)

Relative speed = Higher speed + Lower speed (if both are moving in opposite direction)

Calculation

Speed of train relative to the man = $(140 - 14) \text{ km/h} = (126 \times 5/18) \text{ m/sec} = 35 \text{ m/sec}$

∴ Time taken to pass the man = $700/35 = 20 \text{ seconds}$



Kapil and Anand are standing on the opposite ends of a bridge. Bridge is 1050 m long. Both are walking towards each other. Kapil is walking at the rate of 10 m/sec and Anand is walking at the rate of 5 m/sec. Find the time in which they meet.

- 60 seconds
- 30 seconds
- 70 seconds
- 40 seconds

Ans : (C)

Given:

Length of bridge: 1050 m

Speed of Kapil = 10 m/sec

Speed of Anand = 5 m/sec

Formula used:

Time = distance/speed

Calculation:

Both are walking in opposite direction.

∴ Relative speed will be 15 m/sec (i.e. 10 + 5)

Time = $1050/15$

⇒ 70 seconds





A man takes twice as long to row a distance against the stream as to row the same distance in favour of the stream.
The ratio of the speed of the boat in still water and speed of the stream is:

- 5 : 3
- 4 : 3
- 3 : 1
- 5 : 2



Ans : (C)

Formula used:

Speed of the boat in still water = (Downstream speed + Upstream speed)/2

Speed of stream = (Downstream speed – Upstream speed)/2

Calculation:

Ratio, downstream time : upstream time = 1 : 2

⇒ Ratio, downstream speed : upstream speed = 2 : 1 (\because when the distance is the same, the ratio of speed is inversely proportional to the ratio of time taken)

Suppose, Downstream speed = $2x$ and Upstream speed = x

Speed of the boat in still water = $(2x + x)/2 = 3x/2$

Speed of stream = $(2x - x)/2 = x/2$

\therefore Required ratio = $3x/2 : x/2 = 3 : 1$



A man can row at 8 km/hr in still water. If the velocity of current is 2 km/hr and it takes him 4 hours to row to a place and come back, how far is the place?

- 15 km
- 22 km
- 25 km
- 20 km



Ans : (A)

Speed of man in still water = 8 km/hr

Speed of current = 2 km/hr

Time taken = 4 hr

Formula:

Distance = Speed × Time

Downstream speed = Speed of the boat in still water + Speed of stream

Upstream speed = Speed of the boat in still water – Speed of stream

Calculation:

Downstream speed = $8 + 2 = 10$ km/hr

Upstream speed = $8 - 2 = 6$ km/hr

Let the distance be D

According to the question,

$$D/10 + D/6 = 4$$

$$\Rightarrow \frac{3D + 5D}{30} = 4$$

$$\Rightarrow 8D = 120$$

$$\Rightarrow D = 15 \text{ km}$$

∴ Distance of the place = 15 km



Two trains are running at 40 km/hr and 20 km/hr respectively in the same direction. Fast train completely passes a man sitting in the slower train in 5 seconds. What is the length of the fast train?

- 45 m
- 50 m
- 100 m
- 130 m
- 27.78 m



Ans : (E)

Given:

Speeds = 40 km/hr and 20 km/hr

Formula Used:

Distance = Speed × Time

Calculation:

According to the question,

Relative speed = $(40 - 20)$ km/hr = 20 km/hr

$$\Rightarrow 20 \times 1000 / (60 \times 60) \text{ m/sec}$$

$$\Rightarrow 50/9 \text{ m/sec}$$

\Rightarrow Length of faster train = Speed × Time

$$\Rightarrow (50/9) \times 5$$

$$\Rightarrow 250/9 = 27.78 \text{ m}$$

\therefore Length of faster train is 27.78 m.



A metro covers the distance between stations X and Y, 1 hour faster than a car. Find this distance if the average speed of the metro is 90 km/hr and that of car is 60 km/hr.

- 135 km
- 120 km
- 45 km
- 75 km
- 180 km

Ans : (E)

Let D be the distance between stations X and Y.

Time taken by the metro train to cover the distance, $D = D/90$ hour

Time taken by the Car to cover the distance, $D = D/60$ hour

Time difference between these two vehicles is given by 60 minutes or 1 hour

$$\Rightarrow \left(\frac{D}{60}\right) - \left(\frac{D}{90}\right) = \frac{60}{60}$$

$$\Rightarrow (3D - 2D)/180 = 1$$

$$\Rightarrow D = 180 \text{ km}$$



Verbal





Directions: The question contains a pair of CAPITALISED words followed by some pairs of words. Choose the pair of words which best expresses the relationship similar to that expressed in the capitalized pair.

DOUGH : BREAD

- (A) Sugar : Cake
- (B) Words : Speech
- (C) Paper : Author
- (D) Skates : Ice



ANS.- (B) The first is the main ingredient for making the second. 'Dough' is used to make bread. 'Words' are used in speech and they alone can make a speech.



Directions : Read the following information and answer the question below.

Whatever comes readily is usually lost or spent as readily as it comes.

Which of the following is ANALOGOUS to the statement above?

- (A) A drowning man will clutch at a straw
- (C) A rising tide lifts all boats

- (B) A stitch in time saves nine
- (D) Easy come, Easy go



ANS.- (D) 'Easy come, Easy go' is said when something, especially money, is easily got and then soon spent or lost.



Directions: The question contains a pair of CAPITALISED words followed by five pairs of words. Choose the pair of words which best expresses the relationship similar to that expressed in the capitalized pair.

BEGINNING : ENDING

- (A) Symphony : Movement
- (B) Preface : Afterword
- (C) Introduction : Foreword
- (D) Prologue : Intermission



ANS.- (B) The preface to a book comes at the start, while an afterword comes at the very end.

Directions: The following question consists of two sets of words. Each word in the two sets is related to the other in the same way. Find out the relationship in the given set of two words and then select the alternative that best fits the blank in the other set of words.

balk : _____ :: blockage : unclog

- | | |
|-------------|---------------|
| (A) refrain | (B) occlude |
| (C) welcome | (D) impedance |



ANS.- (C) The word 'blockage' is an antonym of 'unclog'. Also, the antonym of 'balk' is 'welcome'.

So, option 3 is the correct answer.



Directions: In the following question, the first two words (given in italics) have a definite relationship. Choose one word out of the given alternatives which will fill in the blank space and show the same relationship with the third word as between the first two.

Major is related to Lieutenant in the same way as Squadron Leader is related to _____.

- (A) Group Captain
- (B) Flying Attendant
- (C) Flying Officer
- (D) Pilot Officer



ANS.- (C) Major and Squadron Leader are equivalent ranks in Army and Air Force respectively, and so are Lieutenant and Flying Officer.



ANS.- (A) The relation is that the first decorates the second. Lace decorates a gown or any garment. Similarly frosting or icing decorates a cake.



Directions: Read the following information and answer the question below.

One must avoid interfering in a situation that is currently causing no problems but may well do so as a result of such interference.

Which of the following is ANALOGOUS to the statement above?

- (A) A woman is only a woman, but a good cigar is a smoke
- (B) Let sleeping dogs lie
- (C) If you can't beat them, join them
- (D) All good things come to he who waits



ANS.- (B) 'Let sleeping dogs lie' is said when it's best to leave a situation as it is as disturbing it might cause trouble.



Q.08 Directions: The question contains a pair of CAPITALISED words followed by some pairs of words. Choose the pair of words which best expresses the relationship similar to that expressed in the capitalized pair.

SLEEK : GLOSSY

- | | |
|---------------------------|----------------------------|
| (A) Dejected : Jubilant | (B) Contrite : Unrepentant |
| (C) Credible : Believable | (D) Yes : No |



ANS.- 08 (C) (Synonym variants) Something sleek is glossy. Something credible is believable.



Directions: The following question consists of two sets of words. Each word in the two sets is related to the other in the same way. Find out the relationship in the first set of two words and then select the alternative that best fits the blank in the second set of words.

Glutton : Quantity :: _____ : Quality

- | | |
|--------------|------------|
| (A) Gourmand | (B) Gascon |
| (C) Gourmet | (D) Grail |



ANS.- (C) A glutton concerns himself with quantity of food intake; a gourmet with quality of food intake.



Directions: In the following question, the first two words (given in italics) have a definite relationship. Choose one word out of the given alternatives which will fill in the blank space and show the same relationship with the third word as between the first two.

Earth is related to Axis in the same way as Wheel is related to _____.

- (A) Tyre
- (B) Engine
- (C) Road
- (D) Hub



ANS.- (D) The first rotates about the second. **Hub** is the central part of a wheel, rotating on or with the axle, and from which the spokes radiate.



Directions: The question contains a pair of CAPITALISED words followed by some pairs of words. Choose the pair of words which best expresses the relationship similar to that expressed in the capitalized pair.

ATMOSPHERE : STRATOSPHERE

- | | |
|--------------------|------------------------------|
| (A) Nimbus : Cloud | (B) Instrument : Calibration |
| (C) Aircraft : Jet | (D) Winter : Rain |



ANS.- (C) (Part of a category) Stratosphere is a layer of atmosphere. Jet is a category of aircraft.

Directions: Read the following information and answer the question below.

It is advised that something good should not be eliminated when trying to get rid of something bad, or in other words, rejecting the favorable along with the unfavorable.

Which of the following is ANALOGOUS to the statement above?

- (A) A soft answer turneth away wrath
- (B) A penny saved is a penny earned
- (C) A miss is as good as a mile
- (D) Don't throw the baby with the bathwater



ANS.- 12 (D) 'To throw the baby with the bathwater' means to discard something valuable or important while disposing off something considered worthless, especially an outdated idea or form of behavior.



Directions: Read the following information and answer the question below.

It is often said that the real value of something can be judged only from practical experience or results and not from appearance or theory.

Which of the following is ANALOGOUS to the statement above?

- (A) The squeaky wheel gets the grease
- (B) The tail is wagging the dog
- (C) The proof of the pudding is in the eating
- (D) To know which side your bread is buttered on



ANS.- (C) 'The proof of the pudding is in the eating' is said to mean that you can only judge the quality of something after you have tried, used, or experienced it.



Directions: The following question consists of two sets of words. Each word in the two sets is related to the other in the same way. Find out the relationship in the first set of two words and then select the alternative that best fits the blank in the second set of words.

Isotherm : Temperature : Isobar :

- | | |
|--------------|---------------|
| (A) Pressure | (B) Volume |
| (C) Density | (D) Viscosity |



ANS.- (A) 'Isotherm' connects points with equal 'temperature'; 'isobar' connects points with equal 'pressure.'



ANS.- (D) Somebody who is indigent is a 'pauper.'
Somebody who is diplomatic is a good 'negotiator.'



Directions: The following question consists of two sets of words. Each word in the two sets is related to the other in the same way. Find out the relationship in the first set of two words and then select the alternative that best fits the blank in the second set of words.

Mermaid : Fish : Centaur ::

- | | |
|------------|-----------|
| (A) Wolf | (B) Lion |
| (C) Dragon | (D) Horse |



ANS.- (D) Mermaid is supposedly half fish, half human; Centaur is supposedly half horse half human.



Directions: Read the following information and identify the similar relation.

TOPSOIL is related to ERODE as

- (A) Leather is related to Tan
- (B) Veneer is related to Varnish
- (C) Roast is related to Baste
- (D) Paint is related to Peel



ANS.- (D) The relation is one of a thing and its removal. The coming off of topsoil is called 'erosion'; the coming off of paint is called 'peeling.' So, option 5 is correct. 'Tanning' is coloring, not removal. 'Varnish' is outer coating or veneer. 'Baste' is to moisten meat with fat during roasting. 'Mashing' is a sort of crushing, not removal.



Q.18 Directions: In the following question, the first two words (given in italics) have a definite relationship. Choose one word out of the given alternatives which will fill in the blank space and show the same relationship with the third word as between the first two.

Part is related to Whole in the same way as Arc is related to _____.

- (A) Trapezium
- (B) Circle
- (C) Triangle
- (D) Square



ANS.- (B) As 'part' is a portion or a segment of a 'whole', in the same way, 'arc' is a portion of the circumference of a 'circle'.



Directions: The following question consists of two sets of words. Each word in the two sets is related to the other in the same way. Find out the relationship in the first set of two words and then select the alternative that best fits the blank in the second set of words.

Car : Steering wheel :: _____ : Rein

- A. Cheetah
- B. Horse
- C. Jaguar
- D. Sheep



Right Answer Explanation: B. Horse

Steering wheel is used to steer the car, while 'rein' is used to direct a horse.
So, option 2 is the correct answer.



Directions: The question is a pair of CAPITALISED words followed by some pairs of words. Choose the pair of words which best expresses the relationship similar to that expressed in the capitalised pair.

CELERITY : SNAIL

- A. Indolence : Sloth
- B. Obstinacy : Mule
- C. Cunning : Weasel
- D. Humility : Peacock



Right Answer Explanation: D. Humility : Peacock Correct Answer.

(Uncharacteristic trait) Celerity or speed is uncharacteristic of a snail. Similarly, humility is uncharacteristic of a peacock.

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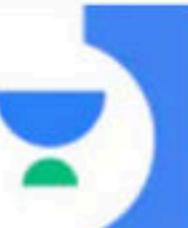


Directions: Read the following information and answer the question below.

Law in this country is eminently negotiable, depending on your pocket, your status and your connections. For every undertrial languishing in jail for a petty offence, there are at least five bigwigs who know they can escape punishment for more serious offences.

Which of the following is ANALOGOUS to the statement above?

- If you must die, what are you dying for?
- You show me the man and I'll show you the rule
- You scratch my back and I'll scratch yours
- Absolute power corrupts absolutely
- There's a time and a place for everything



Ans - (B)

Right Answer Explanation

Option 2 is correct as it means that rules change depending on how influential or powerful the person likely to be affected by the rules is. This is similar to the statement given.

Directions: Read the following information and answer the question below.

X: Marketers have claimed that this weight loss diet produces strong results in just two months.

Y: Well, I'll reserve my opinion till I've tried it myself.

Which of the following is ANALOGOUS to the statement of Y above?

- The proof of the pudding is in the eating
- There is no time like the present
- A soft answer turneth away wrath
- Good talk saves the food
- Seek and you shall find





Ans - (A)

Right Answer Explanation

'The proof of the pudding is in the eating' means 'one can only judge the quality of something after one has tried, used, or experienced it.' This is similar to the text given as 'Y' will share his opinion only after trying out the diet himself.



Directions: The following question consists of two sets of words. Each word in the two sets is related to the other in the same way. Find out the relationship in the first set of two words and then select the alternative that best fits the blank in the second set of words.

Car : Steering wheel :: _____ : Rein

- Cheetah
- Horse
- Jaguar
- Sheep



Ans - (B)

Right Answer Explanation

Steering wheel is used to steer the car, while 'rein' is used to direct a horse.
So, option 2 is the correct answer.



Directions: The question contains a pair of CAPITALISED words followed by some pairs of words. Choose the pair of words which best expresses the relationship similar to that expressed in the capitalised pair.

CELERITY : SNAIL

- Indolence : Sloth
- Obstinacy : Mule
- Cunning : Weasel
- Humility : Peacock



Ans - (D)

Right Answer Explanation

(Uncharacteristic trait) Celerity or speed is uncharacteristic of a snail. Similarly, humility is uncharacteristic of a peacock.

Directions: Read the following information and identify the similar relation.

ENTHUSIASTIC is related to FANATICAL as

- Rotund is related to Obese
- Innocent is related to Kind
- Rebuke is related to Inform
- Virtuous is related to Wholesome





Ans - (A)

Right Answer Explanation

When somebody is overly enthusiastic, he becomes a fanatic. Similarly, an obese person represents extreme form of plumpness or rotundness. Other options do not show a higher degree of intensity as reflected in the given pair.



Directions: Read the following information and answer the question below.

The sales and marketing team got so obsessed about creating the perfect ad campaign that they didn't realize that the social media option that they were banking on was no longer viable because of its recent security issues.

- Out of sight, out of mind.
- One shouldn't miss forest for the trees.
- Paddle your own canoe.
- Strike while the iron is hot.



Ans - (B)

Right Answer Explanation ,

Option 2 means that sometimes one gets so focused on small details that one may miss the larger context. This is close to the situation given in the text.

Directions: The following question consists of two sets of words. Each word in the two sets is related to the other in the same way. Find out the relationship in the first set of two words and then select the alternative that best fits the blank in the second set of words.

Isthmus : Land :: _____ : Water

Dredge

Floe

Promontory

Strait



Ans - (D)

Right Answer Explanation

An isthmus is a narrow strip of land connecting two large land masses; strait is a narrow waterway connecting two large water bodies.

'Dredge' refers to an apparatus for bringing up objects or mud from a river or seabed by scooping or dragging. 'Floe' refers to a sheet of floating ice. 'Promontory' is a high point of land or rock projecting into a body of water. 'Gulf' means a deep inlet of the sea almost surrounded by land.

Thus, only option (4) bears the analogy.



Directions: Read the following information and identify the similar relation.

CHARY is related to CAUTION as

- Circumspect is related to Recklessness
- Imperturbable is related to Composure
- Meticulous is related to Resourcefulness
- Exigent is related to Stability



Ans - (B)

Right Answer Explanation

A relation between a personal attribute and conduct has been presented. Someone 'chary' exhibits 'caution'; someone 'imperturbable' exhibits 'composure'. Hence, option 2 is correct. 'Circumspect' will be opposite of 'reckless'. Hence, incorrect. Somebody 'meticulous' is not necessarily 'resourceful'. 'Exigent' and 'stability' are of opposite meanings. Neither of them is a personal attribute. 'Pluck' is not the conduct exhibited by someone 'fortuitous'.



Directions: The following question consists of two sets of words. Each word in the two sets is related to the other in the same way. Find out the relationship in the first set of two words and then select the alternative that best fits the blank in the second set of words.

Schooner : Ship :: _____ : Gun

- Bayonet
- Recoil
- Armament
- Musket



Ans - (D)

Right Answer Explanation ,

'Schooner' is an old type of ship; 'Musket' is an old type of gun.

- (1) - A 'bayonet' is a knife, dagger, sword, or spike-shaped weapon designed to fit on the end of the muzzle of a rifle, musket or similar firearm, allowing it to be used as a spear-like weapon. It is not an 'old type' of 'gun'. A 'bayonet' is a part of gun.
- (2) - 'Recoil' is the rearward thrust generated when a gun is being discharged.
- (3) - 'Armament' simply refers to military weapons and equipment.
- (5) - 'Calibre' means the internal diameter or bore of a gun barrel.



Directions: Read the following information and identify the similar relation.

EMBRACE is related to AFFECTION as

- ANXIETY is related to APATHY
- DISGUST is related to OMINOUS
- OBEISANCE is related to RESPECT
- LETHARGY is related to FEAR



Ans - (C)

Right Answer Explanation

An 'embrace' is a sign of 'affection'. Similarly, 'obeisance' is a sign of 'respect'.



Directions: Read the following information and answer the question below.

A former board member of a non-profit dance company resigned because he felt the company had neglected its artistic mission and had become too commercial by performing popular pieces to generate revenue.

Which of the following is ANALOGOUS to the statement above?

- Time and tide wait for no man
- A little knowledge is a dangerous thing
- A friend in need is a friend indeed
- There's always more fish in the sea
- The tail is wagging the dog



Ans - (E)

Right Answer Explanation

Option 5 is used to describe a situation where a small, unimportant thing controls a larger, more important thing. The artistic mission of the company has been overshadowed by the efforts to generate revenue. So, option 5 is correct.



Directions: The following question consists of a pair of words, which have a certain relationship with each other.
Select the alternative which bears the same relationship as the original pair of words does.

Script : Play

- Providence : Prudence
- Apportionment : Dispensation
- Score : Symphony
- Collection : Spiel
- Confab : Postulant



Ans - (C)

Right Answer Explanation

'Play' has a written script; symphony has a written score. 'Score' is a written form of a musical composition. Thus, option 3 has the same analogy as the original pair of words,

- (1) - 'Providence' means timely preparation for future eventualities. 'Prudence' also means exercising discipline and reason when managing one's affairs. They do not bear the same analogy as the original pair.
- (2) - 'Apportionment' and 'dispensation' are synonyms which mean distributing or supplying something.
- (4) - 'Collection' simply refers to a group. 'Spiel' refers to a speech, especially one that is long and spoken quickly and is intended to persuade.
- (5) - 'Confab' refers to an informal private conversation or discussion. 'Postulant' means a candidate, especially one seeking admission into a religious order.



Directions: The following question consists of two sets of words. Each word in the two sets is related to the other in the same way. Find out the relationship in the first set of two words and then select the alternative that best fits the blank in the second set of words.

Constellation : Stars :: Grove : _____

- Verdure
- Parasites
- Trees
- Waifs
- Ships



Ans - (C)

Right Answer Explanation

'Constellation' is a series or group of stars. Similarly 'grove' is a group of trees.

- (1) - 'Verdure' means lush green vegetation.
- (2) - 'Parasites' refer to organisms that live on or in a host organism and get food from or at the expense of the host.
- (4) - 'Waifs' refer to stray animals or people.
- (5) - 'Ships' refer to large boats for transporting people or goods by sea.

Only option 3 bears the same analogy.



Directions: The following question consists of two sets of words. Each word in the two sets is related to the other in the same way. Find out the relationship in the first set of two words and then select the alternative that best fits the blank in the second set of words.

Spurious : _____ :: Genuine : Authentic

- Phony
- Veritable
- Bona fide
- Dream
- Marsh





Ans - (A)

Right Answer Explanation

Both 'genuine' and 'authentic' mean 'original'. While 'spurious' means 'false or fake', so does 'phony'. So, option 1 is the correct answer.

Directions: Read the following information and identify the similar relation.

CONTEMPORARY is related to HILLS in a similar way as

- STURDY is related to OLD BOOTS
- TREACHEROUS is related to ROCKS
- REPULSIVE is related to SIN
- UNEXPECTED is related to FLASH
- BLAZING is related to FIRE





Ans - (B)

Right Answer Explanation

'Hills' are generally associated with existing from a long time or old. 'Contemporary', means modern or present, which is opposite to 'old'. Similarly 'rocks' indicate 'steadiness'. 'Treacherous' means unsteady, which is opposite of what 'rocks' convey. So, option 2 is correct.



Speed, Time and Distance



A man travels 200 km distance at 40 km/hr and the next 400 km at 80 km/hr. Find the average speed of the man.

- 50 km/hr
- 60 km/hr
- 65 km/hr
- 70 km/hr

Ans : (B)

Given:

A man travels 200 km distance at 40 km/hr

and next 400 km distance at 80 km/hr

Formula Used:

Distance = Speed × Time

Average speed = (Total distance)/(Total time)

Calculation:

Let t_1 hour be the time taken to cover 200 km distance

And Let t_2 hour be the time taken to cover 400 km distance

$$t_1 = 200/40$$

$$\Rightarrow t_1 = 5 \text{ hours}$$

$$t_2 = 400/80$$

$$\Rightarrow t_2 = 5 \text{ hours}$$

$$\text{Average speed} = (200 + 400)/(5 + 5)$$

$$\Rightarrow \text{Average speed} = 600/10$$

$$\Rightarrow 60 \text{ km/hr}$$

∴ The average speed of a man travel by the whole journey is 60 km/hr.





A car moves at a speed of 45 kmph, and reaches its destination on time. When its average speed becomes 40 kmph, then it reaches the destination 30 minutes late. Find the distance travelled by the car.

- 200 km
- 240 km
- 180 km
- 150 km

Ans : (C)

Distance = (multiplication of speeds/difference of speeds) × difference of time

$$\text{Distance} = [(45 \times 40)/(45 - 40)] \times (30/60)$$

$$\Rightarrow D = (1800/5) \times 1/2$$

$$\Rightarrow D = 180 \text{ km.}$$

∴ The distance travelled by the car is 180 km.



Speed of boat is 12 km/hr and speed of current is 25% of speed of boat. What time taken by boat to cover 30 km downstream and 27 km upstream?

- 4 hrs
- 5 hrs
- 6 hrs
- 8 hrs

Ans : (B)

Given,

Speed of boat = 12 km/hr

Speed of current = 25% of speed of boat

Formula:

Upstream speed = speed of boat - speed of current

Downstream speed = Speed of boat + speed of current

Calculation:

Speed of current = $12 \times (25/100) = 3 \text{ km/hr}$

Upstream speed = $12 - 3 = 9 \text{ km/hr}$

Downstream speed = $12 + 3 = 15 \text{ km/hr}$

Time to cover 30 km distance in downstream = $30/15 = 2 \text{ hr}$

Time to cover 27 km distance in upstream = $27/9 = 3 \text{ hr}$

\therefore Total time = 2 hr + 3 hr = 5 hrs.





X, Y and Z travel from the same place with uniform speeds 4 km/hr, 5 km/hr and 6 km/hr respectively. Y starts 2 hours after X. How long after Y must Z start in order that they overtake X at the same instant?

- $\frac{3}{2}$ hours
- $\frac{4}{3}$ hours
- $\frac{9}{8}$ hours
- $\frac{11}{8}$ hours



Given:

Speed of X, Y and Z = 4 km/h, 5 km/h and 6 km/h.

Formula used:

Distance = Speed × Time

The relative speed of Y with respect to X = ($S_x - S_y$)

Where S_x and S_y are the speed of X and Y respectively.

Calculation:

Distance covered by X in 2 hours = $4 \times 2 = 8$ km

Time required for Y to cover this distance = $8/(5 - 4) = 8$ hours

Let Z starts t hours after Y.

According to the question,

Distance covered by Y = Distance covered by Z

$$\Rightarrow 8 \times 5 = (8 - t) \times 6$$

$$\Rightarrow 40 = 48 - 6t$$

$$\Rightarrow 6t = 8$$

$$\Rightarrow t = 4/3$$

∴ Z starts travelling $4/3$ hours after Y.



A 1200 m long train crossed a man who is running against the direction of the train with a speed of 50 m/s in 6 seconds. If a platform whose length is half of the train's length, then find out the time in which train will cross the platform.

- 10 seconds
- 12 seconds
- 9 seconds
- 6 seconds



Ans : (B)

Given:

Length of train is 1200 m

Time to cross = 6 sec

speed of man = 50 m/s

Formula used:

Time = Distance/Speed

Concept used:

When two object are coming towards each other, their relative speed became sum of their speed.

Calculation:

Let the speed of the train be x m/s

Then, according to the question

$$1200/(x + 50) = 6$$

$$\Rightarrow 1200 = 6(x + 50)$$

$$\Rightarrow 6x + 300 = 1200 \text{ m/s}$$

$$\Rightarrow 6x = (1200 - 300) \text{ m/s}$$

$$\Rightarrow x = 900/6 \text{ m/s}$$

$$\Rightarrow x = 150 \text{ m/s}$$

So, speed of the train is 150 m/s.

Now, length of the platform is half of the length of the train

$$\text{Length of platform} = 1200/2 \text{ m}$$

So, length of platform is 600 m

Now time required to cross the platform is $(1200 + 600)/150$ seconds

$$\Rightarrow 1800/150 \text{ seconds}$$

$$\Rightarrow 12 \text{ seconds}$$

∴ Time required to cross the platform is 12 seconds.





A Salesman is entitled to Rs.15 for every km being travelled by car and Rs.5 for every km being travelled by bike. In a day, if he has made a claim of Rs.600 after covering 90 kms, how many kms did he travel by bike?

- 75 kms
- 45 kms
- 25 kms
- Data Insufficient

Ans : (A)

A Salesman is entitled to Rs.15 for every km being travelled by car and Rs.5 for every km being travelled by bike.

Let us assume that the salesman travelled 'c' km by car and 'b' km by bike.

In a day, if he has made a claim of Rs.600 after covering 90 kms.

According to question:

$$c + b = 90$$

$$\Rightarrow c = 90 - b$$

$$\text{And } 15c + 5b = 600$$

Now, putting the value of 'c' in the above equation, we get:

$$15(90 - b) + 5b = 600$$

$$\Rightarrow 1350 - 15b + 5b = 600$$

$$\Rightarrow -10b = 600 - 1350$$

$$\Rightarrow -10b = -750$$

$$\Rightarrow b = 75$$

So, he travelled 75 kms by bike.

Hence, '75 kms' is the correct answer.





A train can travel 50% faster than a car. Both start from point A at the same time and reach point B 75 kms away from A at the same time. On the way, however, the train lost about 12.5 minutes while stopping at the stations. The speed of the car is:

- 100 Kmph
- 110 Kmph
- 120 Kmph
- 130 Kmph

Ans : (C)

Given

A train can travel 50% faster than a car. Both start from point A at the same time and reach point B, 75 kms away from A at the same time. On the way, however, the train lost about 12.5 minutes while stopping at the stations.

Concept used

Time and Distance

Calculation

Let the speed of the car be x km/hr

Speed of train becomes

$$\Rightarrow x + \frac{x}{2} = \frac{3x}{2} \text{ km/hr}$$

Time taken by car = $75/x$

$$\text{Time taken by Train} = \frac{75}{\frac{3x}{2}} = \frac{50}{x}$$

As per the question,

$$\Rightarrow \frac{75}{x} - \frac{50}{x} = \frac{125}{600}$$

$$\Rightarrow \frac{25}{x} = \frac{125}{600}$$

$$\Rightarrow x = 120 \text{ km/hr}$$





A bus travels a certain distance without stopping anywhere at an average speed of 70 km/h but with stoppages, it travels the same distance with an average speed of 56 km/h. Find out how many minutes per hour the bus stops when it stops.

- 10 min
- 15 min
- 12 min
- 11 min

Ans : (C)

Given:

Speed excluding stoppages = 70 km/h

Speed including stoppages = 56 km/h

Formula used:

Minutes of stops per hour = [(Faster speed - Slower speed)/Faster speed] × 60

calculation:

$$\text{Minutes of stoppages per hour} = [(70 - 56)/70] \times 60$$

$$= (14/7) \times 6$$

$$= 12 \text{ min}$$

∴ The bus stops for 12 min per hour.



A man rows a boat 24 km downstream in 2 hours and 16 km upstream in 2 hours 40 minutes. What is the speed of the boat in still water?

- 6 km per hour
- 7 km per hour
- 9 km per hour
- 5 km per hour

Ans : (C)

GIVEN:

Distance covered 24 downstream in 2 hours km and 16 km upstream in 2 hours 40 minutes.

FORMULA:

In downstream, Distance Covered = Time × (Speed of boat + Speed of stream)

IN upstream, Distance Covered = Time × (Speed of boat - Speed of stream)

CALCULATION:

$$2 \text{ hours } 40 \text{ min} = 2 + (40/60) = 8/3 \text{ hour}$$

Let's consider the speed of boat and stream be x and y km per hour respectively

$$24 = 2 \times (x + y)$$

$$\Rightarrow 12 = (x + y) \quad \dots \text{i})$$

$$16 = (8 / 3) \times (x - y)$$

$$\Rightarrow 6 = (x - y) \quad \dots \text{ii})$$

Solving both equations,

$$x = 9 \text{ km per hour}$$

$$y = 3 \text{ km per hour}$$





Two trains running in opposite directions cross a man standing on the platform in 54 seconds and 1.5 minutes respectively. If they cross each other in 74 seconds, what will be their ratio of speed?

- 4 : 3
- 4 : 5
- 3 : 4
- 1 : 1



Given:

Ans : (B)

The first train crosses a man = 54 seconds

Second train crosses a man = 1.5 min = 90 seconds

The first train and second train crosses to each other = 74 seconds

Formula Used:

Distance = Speed × Time

Calculation:

Let the speed of two trains be x m/s and y m/s

According to the question, we have

The length of the first train = $54x$

The length of the second train = $90y$

Now, the trains are moving in the opposite direction

Relative speed = $(x + y)$

The time taken by trains to cross to each other

$$(54x + 90y)/(x + y) = 74$$

$$\Rightarrow 54x + 90y = 74x + 74y$$

$$\Rightarrow 74x - 54x = 90y - 74y$$

$$\Rightarrow 20x = 16y$$

$$\Rightarrow x/y = 4/5$$

∴ The ratio of the speed of two trains is 4 : 5.

Time and Work





A works twice as fast as B, if both of them can together finish a piece of work in 12 days, so in how many days B alone will do it?

- 24 days
- 27 days
- 36 days
- 48 days

Ans : (C)

Given,

A works twice as fast as B

Ratio of efficiency of A and B = 2 : 1

Let A's one day work = $2x$ and B's one day work = $1x$

When they work together, then

$$A + B = 2x + 1x = 3x$$

$$\text{Total work} = 12 \text{ days} \times 3x = 36x$$

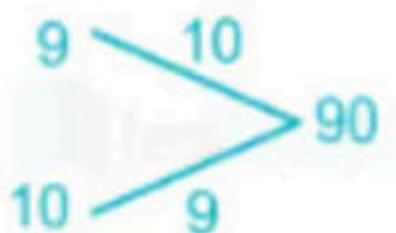
$$\therefore B \text{ alone will complete in} = 36x/1x = 36 \text{ days}$$

A tank can be filled in 9 hours. Because of a leak, it takes 10 hours to fill. In how much time will the leak alone empty the full tank?

- 75 hours
- 80 hours
- 60 hours
- 90 hours



Ans : (D)



Given,

A tank can be filled in = 9 hrs

With the leak point tank fill in time = 10 hrs

Concept/Formulas:

Total work = Efficiency \times Time Taken

Calculation:

Total work = 90 units (LCM of 9, 10)

Efficiency of inlet pipe = $90/9 = 10$ unit (in 1 hour)

Let efficiency of leakage point be x , then

$$\Rightarrow x + 10 = 9$$

$$\Rightarrow x = 9 - 10$$

$$\Rightarrow x = (-1) \text{ unit (leak in 1 hour)}$$

Leak alone can empty the full tank in = $90/1 = 90$ hrs





A man was engaged on a job for 30 days on the condition that he would get a wage of Rs.10 for the day he works, but he have to pay a fine of Rs.2 for each day of his absence. If he gets Rs.216 at the end, he was absent for work for _____ days

- 5 days
- 7 days
- 8 days
- 9 days

GIVEN:**Ans : (B)**

Number of days of engagement = 30 days

The amount is given for 1 day of work = Rs. 10

Amount deducted for no work per day = Rs. 2

Amount received by the man at the end of the month = Rs. 216

CALCULATION:

Let the number of days the man was absent on work be "x"

Number of days worked = $30 - x$

According to question,

$$10(30 - x) - 2x = 216$$

$$300 - 10x - 2x = 216$$

$$12x = 300 - 216$$

$$x = 84/12 = 7$$

∴ the man did not work for 7 days





A certain number of men can finish a piece of work in 10 days. If however there were 10 men less it will take 10 days more for the work to be finished. How many men were there originally?

- 10 men
- 15 men
- 25 men
- 20 men

Ans : (D)

Say there was x number of men initially.

∴ One man can finish the work in $10x$ days ---(1)

∴ Amount of work done by one man in one day = $1/(10x)$

∴ Amount of work done by x men in one day = $1/10$

Given $(x-10)$ men can finish the work in $10 + 10 = 20$ days

⇒ One man can finish the work in $20(x-10)$ days ---(2)

From (1) and (2)...

$$10x = 20(x - 10)$$

$$\Rightarrow 10x = 20x - 200$$

$$\Rightarrow x = 20 \text{ men.}$$

Alternatively:

When the number of days is doubled, the number of men is reduced by half. Here the number of men is reduced by 10, so the total number of initial men working = $2 \times 10 = 20$ men.



'A' can do a piece of work in 10 days and 'B' can do it in 15 days. Find how much time they will take to complete the work if 'B' leaves 2 days before the scheduled completion of the work.

- $7\frac{1}{3}$ days
- 6 days
- $8\frac{2}{3}$ days
- 9 days

Ans : (A)

The completion of the work would have been scheduled assuming that A & B will work together for completing the work.

Let us suppose it to be x days.

but,

B worked for $x - 2$ days.

Let the total work = L. C. M (10, 15)

= 30 units.

$$A \text{ completes} \rightarrow \frac{30}{10} = 3 \text{ units/day}$$

$$B \text{ completes} \rightarrow \frac{30}{15} = 2 \text{ units /day}$$

$$x = \left(\frac{10 \times 15}{10 + 15} \right) = \frac{150}{25} = 6 \text{ days}$$

For 4 days, A & B worked together

Work done = $4 \times 5 = 20$ units.

Remaining work = 10 units.

We need to find how much time A will take to complete 10 units of work.

A completes 3 units in 1 day

A completes 10 units in $10/3 = 3.33$ days.

$$\text{Total days} \rightarrow 4 + 3\frac{1}{3} = 7\frac{1}{3} \text{ days}$$





$(x - 4)$ men can do a piece of work in x days & $(x + 14)$ men can do 75% of the same work in $(x - 20)$ days. Then in how many days $(x + 20)$ men can complete the work?

- 27 days
- 24 days
- 40 days
- 48 days

Ans : (B)

Given:

Time taken by $(x - 4)$ men to complete a work = x days

Time taken by $(x + 14)$ men to complete 75% of the work = $(x - 20)$ days

Formula used:

$(M_1D_1H_1)/W_1 = (M_2D_2H_2)/W_2$ (Where M, D, H and W are number of men, days, hours and total work)

Calculations:

Let the total work and time taken by $(x + 20)$ men to complete the work be 1 unit and d days respectively.

According to question,

$$\Rightarrow \{(x - 4) \times x\}/1 = \{(x + 14) \times (x - 20)\}/\{(3/4) \times 1\}$$

$$\Rightarrow 3 \times (x - 4) \times x = 4 \times (x + 14) \times (x - 20)$$

$$\Rightarrow x^2 - 12x - 1120 = 0$$

$$\Rightarrow x = 40 \text{ or } -28$$

As number of days cannot be in negative,

$$\Rightarrow x = 40$$

Now,

$$\{(x - 4) \times x\}/1 = \{(x + 20) \times d\}/1$$

$$\Rightarrow \{(40 - 4) \times 40\}/1 = \{(40 + 20) \times d\}/1$$

$$\Rightarrow 36 \times 40 = 60 \times d$$

$$\Rightarrow d = 24 \text{ days}$$

\therefore The time taken by $(x + 20)$ men to complete the work is 24 days.



Pipe U can fill a tank in 6 hours and pipe V can fill the same tank in 8 hours. If they are opened on alternative hours and if pipe U is opened first then, in how many hours, the tank shall be full?

- 6 hours 45 mins
- 8 hours
- 9 hours 30 mins
- 6 hours



Given:

U = 6 hours

V = 8 hours

Calculation:

Pipe U can fill the tank = 6 hrs

Pipe V can fill the tank = 8 hrs

Suppose, the capacity of the tank is (LCM of 6 & 8) i.e., 24 litres.

Then, part of the tank in 1 hrs by pipe U = $24/6 = 4$ litres

Part of tank in 1 hr by pipe V = $24/8 = 3$ litres

U starts first, So in 1 hour U filled 4 litres

in 2nd hour V filled 3 litres

∴ in 2 hours tank filled = 7 litres

∴ in 6 hours tank filled = 21 litres

Again U will fill the left litres i.e. 3 litres

Time taken by U to fill 3 litres = 45 mins (\because in 60 min he fills 4 litres)

∴ Total time = 6 hours 45 minutes



Neil works for 4 hours in a day. After working for every hour, his efficiency reduces by 10% as compared to his efficiency in previous hour. He started the work with the speed so that if continues with same speed; he would finish work in 4 hours. What percentage of the work would he be actually able to finish in 4 hours?

- 69.75%
- 75.75%
- 85.975%
- 90%

Ans : (C)

Neil started the work with the speed so that if continues with same speed; he would finish work in 4 hours.

⇒ In the first hour, Neil is working at a speed at which he will finish $\frac{1}{4}$ of the total work in an hour.

Work done in the first hour = $\frac{1}{4}$

In the second hour, speed reduces by 10%.

Work done is directly proportional to speed, if everything else is constant.

Work done in the second hour will be 10% lesser than work done in the first hour.

⇒ Work done in second hour = $\frac{1}{4} - ((1/4) \times (10/100)) = 9/40$

Similarly, work done in third hour = $(9/40) - ((9/40) \times (10/100)) = 81/400$

And work done in fourth hour = $(81/400) - ((81/400) \times (10/100)) = 729/4000$

Total work done in 4 hours = $(1/4) + (9/40) + (81/400) + (729/4000) = 3439/4000 = 85.975/100$

∴ Work done actually will be 85.975% of total work.



A man, a woman, and a boy can do a work in 15, 20, and 30 days respectively. How many men must assist 3 boys and 4 women to finish the work in 2 days only?

- 4
- 5
- 3
- 6



Given:

Ans : (C)

Time is taken by a man to do the work = 15 days

Time is taken by a woman to do the work = 20 days

Time is taken by a boy to do the work = 30 days

Formula used:

Total work = Efficiency \times Time is taken

Calculation:

Let the total work be x units

The efficiency of a man = $x / 15$

The efficiency of a woman = $x / 20$

The efficiency of a boy = $x / 30$

So the efficiency of 4 women = $4 \times (x / 20) = x / 5$

Now efficiency of 3 boys = $3 \times (x / 30) = x / 10$

The total efficiency of 4 women and 3 boys = $(x / 5) + (x / 10) = 3x / 10$

Now the work done by 4 women and 3 boys in 2 days

$$\Rightarrow 2 \times (3x / 10) = 3x / 5 \text{ units}$$

$$\text{Remaining work} = x - (3x / 5) = 2x / 5$$

So the remaining work done in 2 days by some men,

$$2x/5 = \text{Efficiency} \times 2$$

$$\text{Efficiency} = 2x/10 = x/5$$

$x/15$ is the efficiency of one man,

hence $x/5$ is the efficiency of 3 men

∴ Need 3 men to assist to complete work in 2 days.





A tank is filled by 6 pipes in 30 minutes. After 10 minutes, 3 pipes stopped functioning. How long will it take to complete the tank now?

- 50 minutes
- 20 minutes
- 30 minutes
- 45 minutes

Ans : (A)

Given:

A tank is filled by 6 pipes in 30 minutes

Formula used:

$(M_1 \times D_1)/W_1 = (M_2 \times D_2)/W_2$, where M = number of workers, D = Time taken and W = work

Calculation:

A tank is filled by 6 pipes in 30 minutes

Thus, in 10 minutes tank will be $1/3^{\text{rd}}$ filled.

After 10 minutes, Number of working pipes = 3, work left for them = $2/3^{\text{rd}}$ quantity of tank

$$\text{Thus, } 6 \times 10 \times 1/(1/3) = 3 \times \text{Time} \times 1/(2/3)$$

$$\Rightarrow 6 \times 10 \times 3 = 3 \times \text{Time} \times 3/2$$

$\Rightarrow \text{Time} = 40$ minutes = time taken to fill the remaining $2/3^{\text{rd}}$ quantity of tank

$$\therefore \text{Total time to fill tank} = 10 + 40 = 50 \text{ minutes}$$



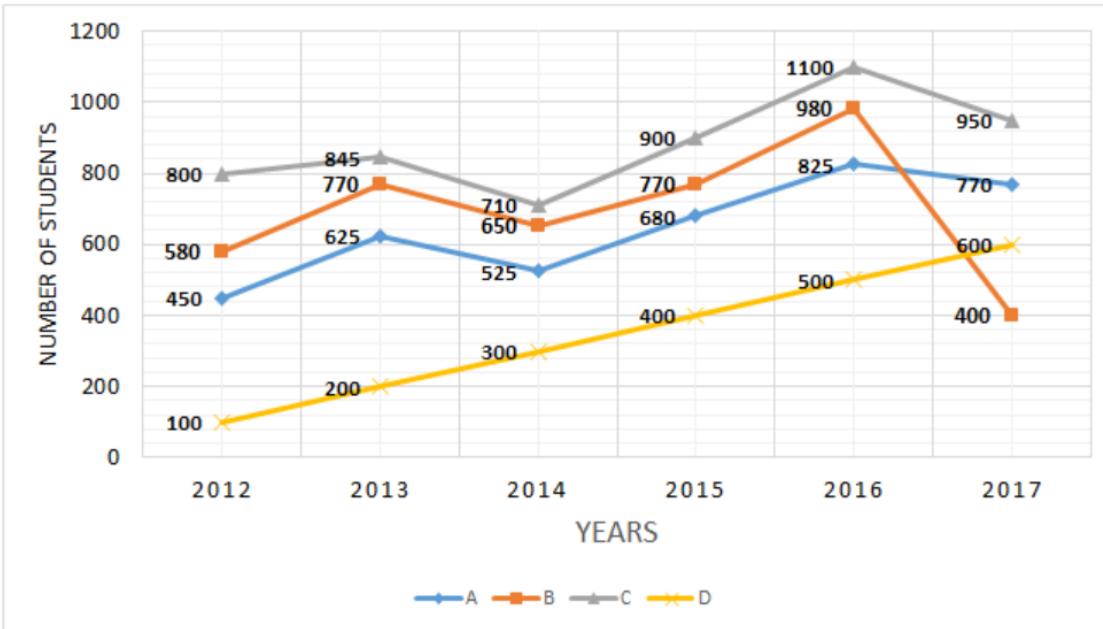
Data Interpretation



Directions: Study the following graph carefully and answer the question that follows.



**Number of Students from Four Different Schools
Who Qualified in an Exam in Six Different Years from 2012 to 2017**



What was the approximate percentage increase in the number of students who qualified in the exam from school A in the year 2013 as compared to that in the previous year?

- 39%
- 48%
- 34%
- 55%
- None of these



Ans. (A)

Number of students who qualified in the exam from school A in the year 2013 = 625

Number of students who qualified in the exam from school A in the year 2012 = 450

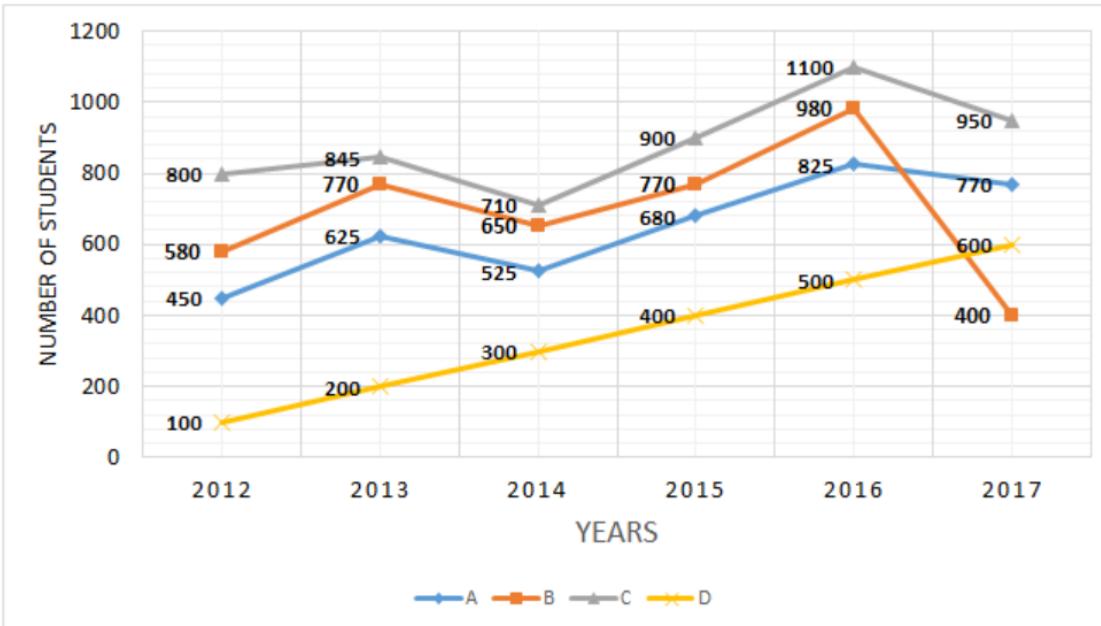
Increase = $625 - 450 = 175$

$$\text{Required percentage} = \frac{175}{450} \times 100 = \frac{350}{9} = 38.88\% \approx 39\%$$



Directions: Study the following graph carefully and answer the question that follows.

**Number of Students from Four Different Schools
Who Qualified in an Exam in Six Different Years from 2012 to 2017**



What was the ratio of the number of students who qualified in the exam from school C in the year 2014 to the number of students who qualified in the exam from school D in the year 2017?

- 60 : 71
- 71 : 60
- 51 : 60
- 60 : 51
- None of these



Ans. (B)

Number of students who qualified in the exam from school C in the year 2014 = 710

Number of students who qualified in the exam from school D in the year 2017 = 600

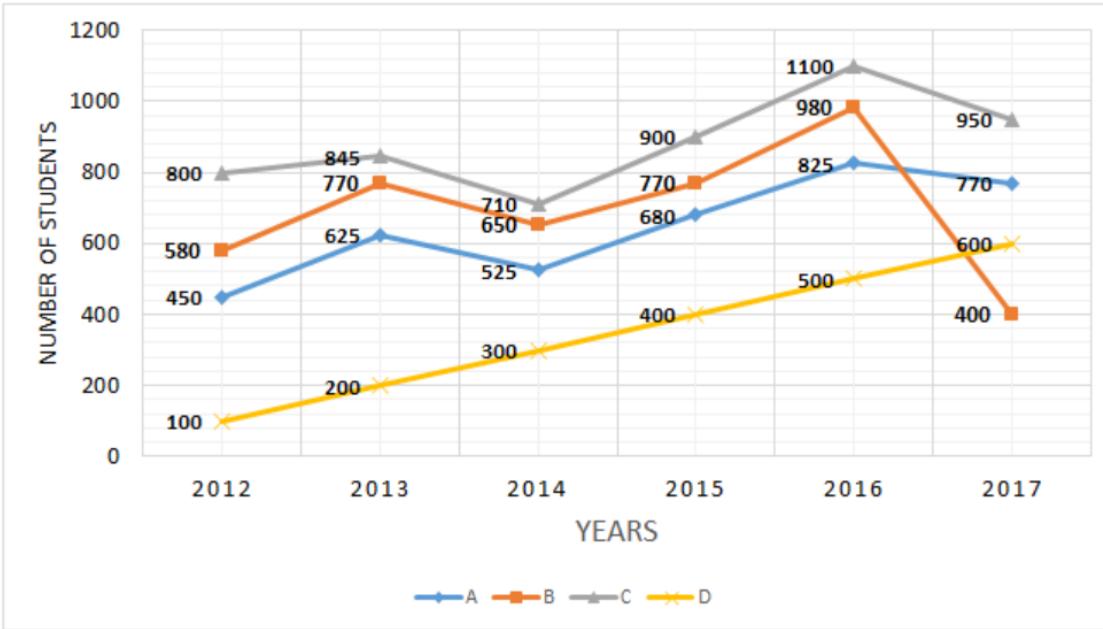
Required ratio = 710 : 600

= 71 : 60

Directions: Study the following graph carefully and answer the question that follows.



**Number of Students from Four Different Schools
Who Qualified in an Exam in Six Different Years from 2012 to 2017**



What was the difference between the total number of students who qualified in the exam from schools A and B together in the year 2017 and the total number of students who qualified in the exam from schools C and D together in the year 2015?

- 150
- 330
- 220
- 130
- None of these



Ans. (D)

Total number of students who qualified in the exam from schools A and B together in the year 2017 = $400 + 770 = 1170$

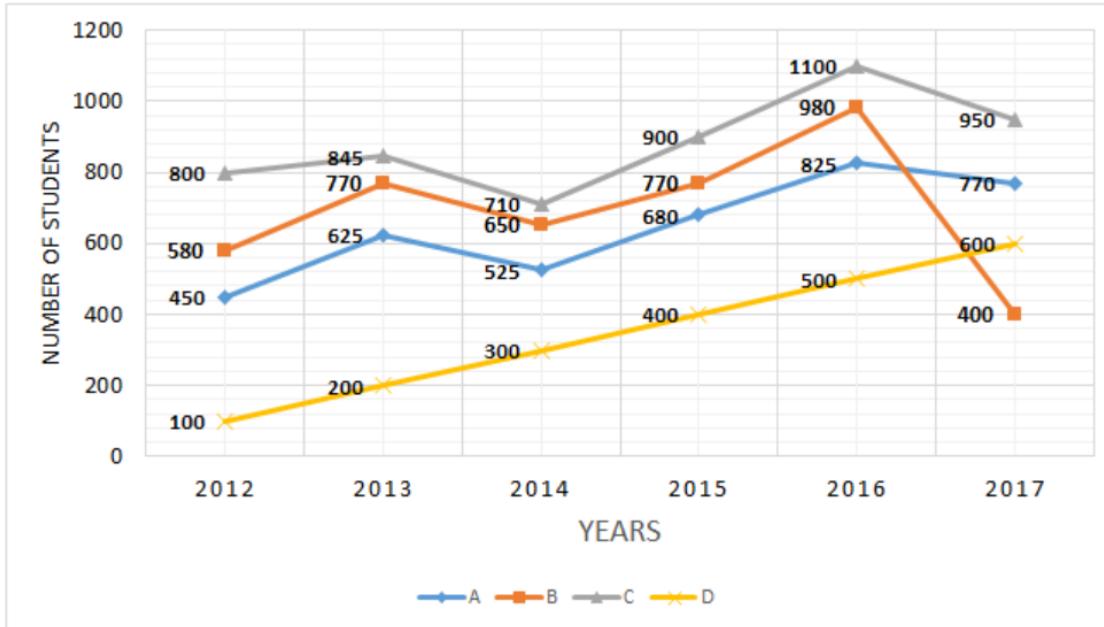
Total number of students who qualified in the exam from schools C and D together in the year 2015 = $900 + 400 = 1300$

Required difference = $1300 - 1170 = 130$



Directions: Study the following graph carefully and answer the question that follows.

**Number of Students from Four Different Schools
Who Qualified in an Exam in Six Different Years from 2012 to 2017**



What was the average number of students who qualified in the exam from school C over all the years together?

- 884
- 888
- 898
- 864
- 894



Ans. (A)

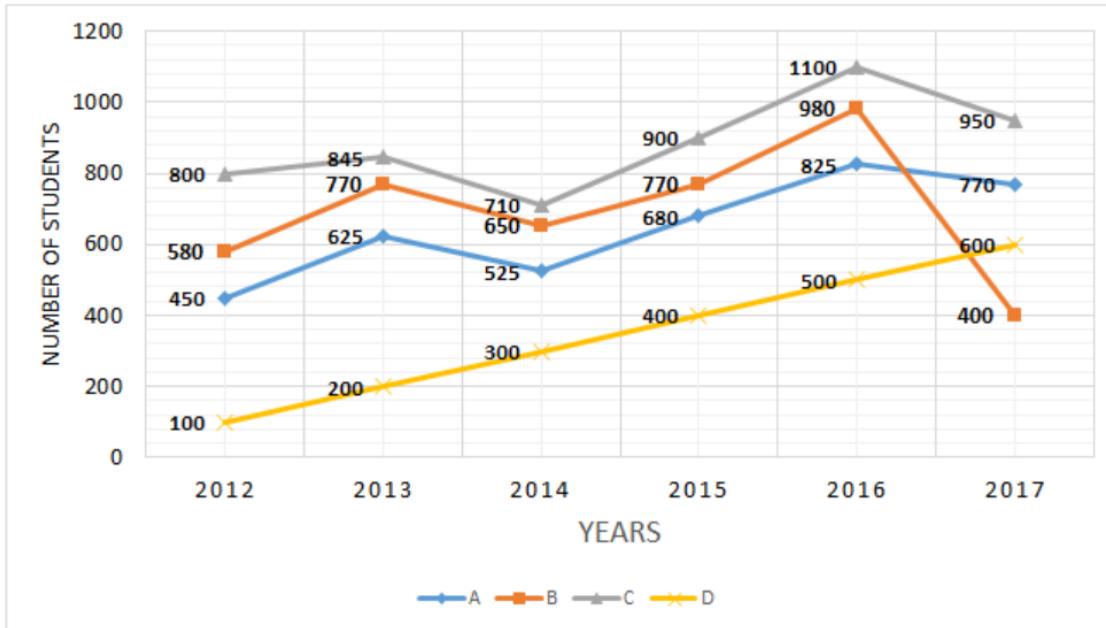
Total number of students who qualified in the exam from school C over all the years together
 $= 800 + 845 + 710 + 900 + 1100 + 950 = 5305$

$$\text{Required average} = \frac{5305}{6} = 884.17 \approx 884$$

Directions: Study the following graph carefully and answer the question that follows.



**Number of Students from Four Different Schools
Who Qualified in an Exam in Six Different Years from 2012 to 2017**



What was the total number of students who qualified in the exam from school A in 2016, from school B in 2015, from school C in 2014 and from school D in 2012?

- 2405
- 2500
- 2460
- 2600
- None of these



Ans. (A)

Total number of students who qualified in the exam from school A in 2016, from school B in 2015, from school C in 2014 and from school D in 2012

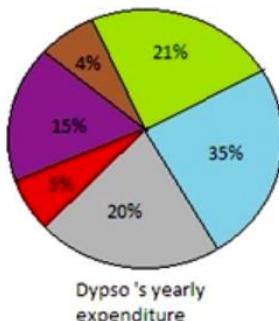
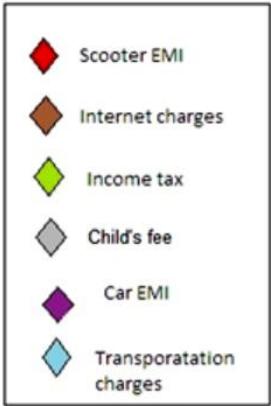
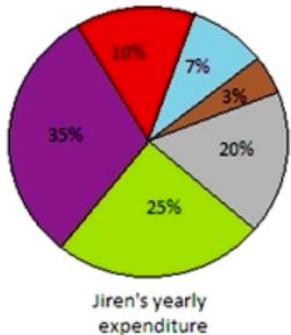
$$= 825 + 770 + 710 + 100$$

$$= 2405$$



Directions: Study the following data and answer the question.

The following pie charts show the yearly expenses of Jiren and Dypso, where they both spend 50% of their salaries.
The 50% of annual salaries of Jiren and Dypso are Rs. 5,00,000 and Rs. 4,50,000, respectively.



Jiren's expenditure on car EMI is what percentage more than Dypso's expenditure on child's fee?

- 94.44%
- 92%
- 91.35%
- 89.94%
- 87.68%



Ans. (A)

$$\text{Money spent by Jiren on car's EMI} = 35\% \text{ of } 5,00,000 = \frac{35}{100} \times 5,00,000 \\ = \text{Rs. } 1,75,000$$

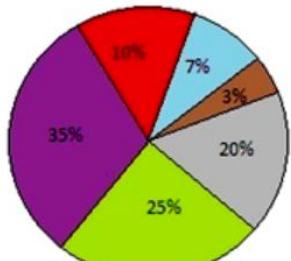
$$\text{Money spent by Dypso on child's fee} = 20\% \text{ of } 4,50,000 = \frac{20}{100} \times 4,50,000 \\ = \text{Rs. } 90,000$$

$$\text{Required percentage} = \frac{1,75,000 - 90,000}{90,000} \times 100 = 94.44\%$$

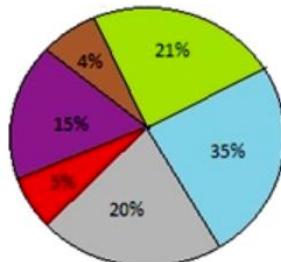


Directions: Study the following data and answer the question.

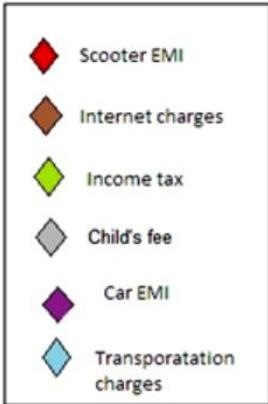
The following pie charts show the yearly expenses of Jiren and Dypso, where they both spend 50% of their salaries.
The 50% of annual salaries of Jiren and Dypso are Rs. 5,00,000 and Rs. 4,50,000, respectively.



Jiren's yearly expenditure



Dypso's yearly expenditure



What is the ratio of Jiren's expenditure on internet charges to Dypso's expenditure on scooter EMI?

- 3 : 2
- 2 : 3
- 5 : 3
- 3 : 5
- None of these



Ans. (B) Total internet charges of Jiren = 3% of 5,00,000

$$= \frac{3}{100} \times 5,00,000 = \text{Rs. } 15,000$$

Total expenditure on scooter EMI of Dypso = 5% of 4,50,000

$$= \frac{5}{100} \times 4,50,000 = \text{Rs. } 22,500$$

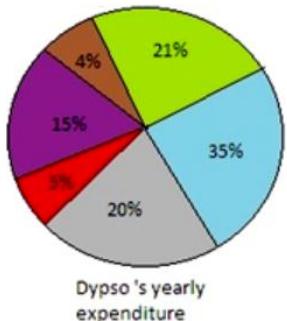
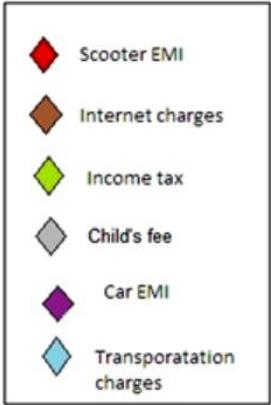
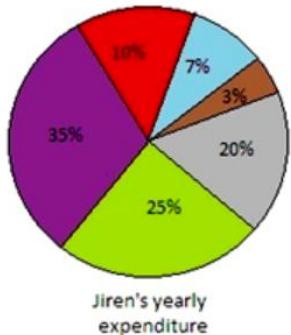
Required ratio = 15,000 : 22,500

$$= 2 : 3$$



Directions: Study the following data and answer the question.

The following pie charts show the yearly expenses of Jiren and Dypso, where they both spend 50% of their salaries.
The 50% of annual salaries of Jiren and Dypso are Rs. 5,00,000 and Rs. 4,50,000, respectively.



What is the total amount spent by Dypso on income tax and car EMI?

- Rs. 1,50,000
- Rs. 1,51,200
- Rs. 1,62,000
- Rs. 1,63,000
- Rs. 1,67,000



Ans. (C) Money spent by Dypso on income tax = 21% of 4,50,000

$$= \frac{21}{100} \times 4,50,000 = \text{Rs. } 94,500$$

Money spent by Dypso on car EMI = 15% of 4,50,000

$$= \frac{15}{100} \times 4,50,000 = \text{Rs. } 67,500$$

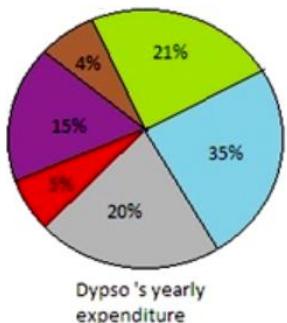
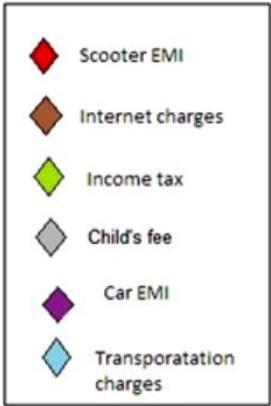
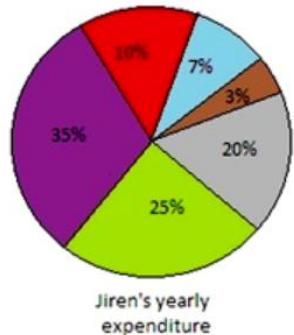
Total expenditure = Rs. $(94,500 + 67,500)$

$$= \text{Rs. } 1,62,000$$



Directions: Study the following data and answer the question.

The following pie charts show the yearly expenses of Jiren and Dypso, where they both spend 50% of their salaries.
The 50% of annual salaries of Jiren and Dypso are Rs. 5,00,000 and Rs. 4,50,000, respectively.



What is the average amount spent by Jiren on scooter EMI, child's fee and transportation?

- Rs. 61,000.45
- Rs. 61,666.67
- Rs. 62,500.50
- Rs. 64,000.65
- Rs. 67,500.66



Ans. (B) Money spent by Jiren on scooter EMI = 10% of 5,00,000

$$\frac{10}{100} \times 5,00,000 = \text{Rs. } 50,000$$

Money spent by Jiren on child's fee = 20% of 5,00,000

$$\frac{20}{100} \times 5,00,000 = \text{Rs. } 1,00,000$$

Money spent by Jiren on transportation = 7% of 5,00,000

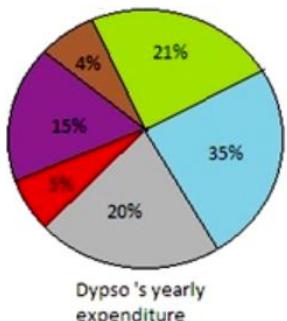
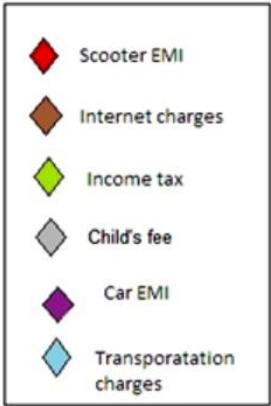
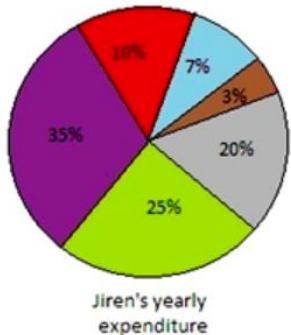
$$= \frac{7}{100} \times 5,00,000 = 35,000$$

$$\text{Required average} = \frac{1,85,000}{3} = \text{Rs. } 61,666.67$$



Directions: Study the following data and answer the question.

The following pie charts show the yearly expenses of Jiren and Dypso, where they both spend 50% of their salaries.
The 50% of annual salaries of Jiren and Dypso are Rs. 5,00,000 and Rs. 4,50,000, respectively.



What is the ratio of money spent by Dypso on income tax to money spent by Jiren on child's fee?

- 200 : 189
- 189 : 200
- 191 : 200
- 200 : 191
- None of these



Ans. (B) Money spent by Dypso on income tax = 21% of 4,50,000

$$= \frac{21}{100} \times 4,50,000 = \text{Rs. } 94,500$$

Money spent by Jiren on child's fee = 20% of 5,00,000

$$= \frac{20}{100} \times 5,00,000 = \text{1,00,000}$$

Required ratio = 94,500 : 1,00,000

= 189 : 200

Percentage



$$\textcircled{P} = A = \textcircled{P} + \textcircled{I}$$

$P + \textcircled{-P}$

$$\textcircled{I} = P$$

A number exceeds 60% of itself by 36. Find the number.

56

26

36

78

90

Ans : (E)

Given:

A number exceeds 60% of itself by 36

Calculation:

Let the number is x .

According to question:

$$\Rightarrow x = 60\% \text{ of } x + 36$$

$$\Rightarrow x - (60x / 100) = 36$$

$$\Rightarrow 40x / 100 = 36$$

$$\Rightarrow x = 90$$

\therefore The number is 90.



If Kapil earns $(1/4)$ more than Anil, how much percent does Anil earn less than Kapil?

- 20%
- 10%
- 5%
- 25%
- 35%



Ans : (A)

Given:

Kapil earns $(1/4)$ more than Anil.

Calculation:

Let Anil earning is Rs. x

Kapil earning = Anil earning + $(1/4)$ of Anil earning

$$\Rightarrow \text{Kapil earning} = x + (x/4)$$

$$\Rightarrow \text{Kapil earning} = 5x/4$$

$$\Rightarrow 4/5 \times (\text{Kapil earning}) = x$$

$$\Rightarrow 80\% \text{ of Kapil earning} = x$$

So, Anil earning is 20% less than Kapil earning.



When the price of earphone is increased by Rs. 576, it becomes 112% of its original price. What is the original price of earphone?

- Rs. 3600
- Rs. 4600
- Rs. 4500
- Rs. 4800
- Rs. 5200



Ans : (D)

Given:

Price of earphone is increased by Rs. 576

Calculation:

Let the original price of the earphone be x

$$x + 576 = 112\% \text{ of } x$$

$$\Rightarrow x + 576 = 112x/100$$

$$\Rightarrow 100x + 57600 = 112x$$

$$\Rightarrow 57600 = 12x$$

$$\Rightarrow x = 57600/12$$

\therefore Original price of earphone Rs. 4800



If a number A is 30% less than another number B and B is 20% more than 150, then what is the value of A?

144

156

136

126

111



Ans : (D)

Given,

A is less than B by = 30%

B is more than 150 by = 20%

Formula:

If a number increased by $x\%$, then

Increased number = Actual number $\times (100 + x)/100$

Calculation:

$$B = 150 \times 120/100$$

$$\Rightarrow B = 180$$

$$A = 180 \times 70/100$$

$$\Rightarrow A = 126$$



A number X is 150% of another number Y, which is 40% of 30. Find the difference in the value of Y and X.

9

8

7

6

5



Ans : (D)

Given:

Formula:

Calculation:

$X = 150\% \text{ of } Y$

$$\Rightarrow Y = 40\% \text{ of } 30 = (40 / 100 \times 30)$$

$$\Rightarrow Y = 12$$

Putting value of Y we get $X = 18$

$$\therefore \text{Difference in values} = 18 - 12 = 6$$



A man saves 10% from his monthly income. If his monthly expenditure is Rs. 7,641, then what is his monthly income?

- Rs. 7,452
- Rs. 8,490
- Rs. 5,228
- Rs. 8,224
- Rs. 8,000



Ans : (B)

Given,

Monthly savings of the man = 10%

Monthly expenditure is = Rs. 7641

Concept/Formula:

If savings of any persons be $x\%$, then

Monthly expenditure = Monthly income $\times [(100 - x)/100]$

Calculation:

Let monthly income of the persons be x

According to the question

$$7641 = x \times (90/100)$$

$$\Rightarrow x = 7641 \times (100/90)$$

$$\therefore x = \text{Rs. } 8490$$



Asha's salary was increased by 10%. In order to bring her salary back to the original value, her new salary must be decreased by

10%

$9\frac{1}{11}\%$

11%

$11\frac{1}{9}\%$

12%



Ans : (B)

Let Asha's original salary be Rs. a

$$\Rightarrow \text{New salary} = a + a \times (10/100) = 11a/10$$

Let the decrease percentage in salary be N.

$$\Rightarrow a = (11a/10) - \{(11a/10) \times (N/100)\}$$

$$\Rightarrow a = (11a/10) \times \{(100 - N)/100\}$$

$$\Rightarrow 1000/11 = 100 - N$$

$$\Rightarrow N = 100/11$$

$$\Rightarrow N = 9\frac{1}{11}\%$$

\therefore Salary must be decreased by $9\frac{1}{11}\%$



In an election, a candidate won by getting 75% of the valid votes. Out of a total number of 560000 votes, 15% were invalid. What is the number of valid votes got by the winning candidate?

- 350000
- 280000
- 357000
- 275000
- 310000



Ans : (C)

Total votes = 560000

Number of valid votes = $560000 \times 85/100 = 476000$

Number of valid votes got by the winner = $476000 \times 75/100 = 357000$



In a university 65% of the students are boys. If there are 224 girls in the university, Find the number of boys in the school?

- 500
- 420
- 360
- 416
- 600



Ans : (D)

Let the total number of students be X

The percentage of boys is known as 65%

Hence, percentage of girls is $(100 - 65) = 35$

Number of girls are 224

Hence, 35% of X = 224

$$\Rightarrow X = (224 \times 100)/35$$

$$\Rightarrow X = 640$$

$$\therefore \text{The number of boys are} = (65 \times 640)/100 = 416$$



A number is increased by 5% and again the number increased by 20%. Find the overall percentage increase in number.

- 25%
- 26%
- 27%
- 28%
- 15%



Ans : (B)

Given:

Number increased by 5% and then by 20%

Calculation:

Let the number is 100

Increased number = 105 (i.e. 5% of 100, so $100 + 5 = 105$)

Again number increased by 20%

$$\Rightarrow 20\% \text{ of } 105 = 21$$

$$\Rightarrow 105 + 21 = 126$$

$$\Rightarrow (26/100) \times 100 = 26\%$$

\therefore Overall increase in number is 26%.

Percentage





In a election a candidates got 62% vote and he won by 144 votes. How many votes did the winning candidate get?

278

372

398

405

ANS - (B)

Winning candidate votes = 62% votes

Let the total number of votes be 'x'

Margin of winning = 144

Other candidate secured = $(100 - 62)\%$ = 38%

Such that difference of the two = 144

$$\Rightarrow \frac{62x}{100} - \frac{38x}{100} = 144$$

$$\Rightarrow 24x = 14400$$

$$\Rightarrow x = 600$$

∴ Number of votes winning candidate got = 62% of x = $\frac{62}{100} \times 600 = 372$





If Suraj earns 30% more than Deepak then how much percent does Deepak earn less than Suraj?

- (23/13)%
- $23\frac{1}{13}\%$
- $23\frac{3}{13}\%$
- (23/27)%

ANS - (B)

Given:

Suraj = 30% more of deepak

Calculation:

Here, Suraj earns 30% more than Deepak

Let Deepak's income be 100

So, Suraj's income = $100 + 30$

Required percentage = $[(130 - 100)/130] \times 100$

$$\Rightarrow (30/13)\% = 23\frac{1}{13}\%$$

∴ Required percentage is $23\frac{1}{13}\%$





The population of a city decreased from 25000 to 24500. The percentage of decrease is

5%

2%

4%

3%

ANS - (B)

Initial population = 25000

Population after decrement = 24500

Decrease in population = 25000 - 24500 = 500

Percentage of decrease in population = $[500/25000] \times 100 = 2\%$



400 students passed in an examination and 60% students failed. Find the total number of students who appeared.

800

1040

1000

1020

ANS - (C)

Given:

400 students passed in an examination

60% students failed

Calculation:

Number of passed students = 400

Percentage of failed students = 60%

Percentage of passed students = $(100 - 60)\%$

= 40%

Let total number of students appeared be x

$$\Rightarrow 40\% \text{ of } x = 400$$

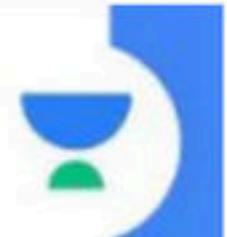
$$\Rightarrow (40/100) \times x = 400$$

$$\Rightarrow x = (400 \times 100)/40$$

$$\Rightarrow x = 10 \times 100$$

$$\Rightarrow x = 1000$$

\therefore Total students appeared (x) = 1000



If 15% of Amit's income is the same as 20% of Rohit's income. What is the Ratio of their income?

3 : 4

2 : 3

4 : 3

3 : 2

ANS - C

Let the income of Amit be Rs. x

Let The income of Rohit be Rs. y

According to the question,

$$15\% \text{ of } x = 20\% \text{ of } y$$

$$\Rightarrow (15/100) \times x = (20/100) \times y$$

$$\Rightarrow x/y = 20/15$$

$$\Rightarrow x/y = 4/3$$

∴ The ratio of their income is 4 : 3.





A person's salary increased from Rs. 8,100 to Rs. 9,000. What is the percentage increase in his salary?

- 6 $\frac{1}{9}$ %**
- 11 $\frac{1}{9}$ %**
- 9 $\frac{1}{9}$ %**
- 13 $\frac{7}{9}$ %**



Given:

ANS - (B)

Initial salary = Rs. 8100

Increased salary = Rs. 9000

Formula used:

Percentage increased = $(\text{Initial salary} - \text{Increased salary}) / \text{Initial salary} \times 100$

Calculation:

Initial salary = Rs. 8100

Increased salary = Rs. 9000

Percentage increased = $(\text{Initial salary} - \text{Increased salary}) / \text{Initial salary} \times 100$

$$\Rightarrow \text{Required percent} = (9000 - 8100) / 8100 \times 100$$

$$\Rightarrow \text{Required percent} = 900 / 8100 \times 100$$

$$\Rightarrow \text{Required percent} = 1 / 9 \times 100$$

$$\Rightarrow \text{Required percent} = 100 / 9\%$$

$$\Rightarrow \text{Required percent} = 11\frac{1}{9}\%$$

\therefore The percentage increase in his salary is $11\frac{1}{9}\%$.



If the sides of a square is increased by 8%. Then, find the percentage of increase in its area.

- 15.36%
- 13.34%
- 16.64%
- 14.56%

ANS - (C)

Given:

Percentage of side increased = 8%

Formula used:

Let initial side of square = 100

Initial area = $100 \times 100 = 10000$

Increased side = 108

Increased area = $108 \times 108 = 11664$

Increment in area = $11664 - 10000 = 1664$

∴ Required percentage = $(1664/10000) \times 100 = 16.64\%$



If A's salary is 60% more than B's salary, then by what percentage is B's salary less than that of A?

- 37.5%
- 45%
- 33.3%
- 47.7%

ANS - (A)

Given:

A's salary is 60% more than B's salary

Calculation:

Let the salary of B be 100

$$\text{A's salary} = 100 + 60\% \text{ of } 100$$

$$\text{A's salary} = 160$$

The salary of B is $(160 - 100) = 60$ less than A

Salary of B is $\{[60/(\text{Salary of A})] \times 100\}$ percent less than A

\Rightarrow Salary of B is $\{[60/160] \times 100\}$ percent less than A

$\Rightarrow 37.5\%$

\therefore The salary of B is 37.5% less than the salary of A





In a school leader election Manoj got 30% votes, Suresh got 34% votes and Ramesh got 36% votes. If Ramesh leads Suresh by 40 votes then find the number of students in the school?

- 2000
- 4000
- 3600
- 1800

ANS - (A)

Given,

⇒ Percent votes gained by Suresh = 34%

⇒ Percent votes gained by Ramesh = 36%

⇒ Percent difference between their votes = 2%

⇒ Number of Vote difference between them = 40

$$\therefore 2\% = 40$$

$$\Rightarrow 100\% = (40/2) \times 100 = 2000$$



If 40% of a number is 112. Then, find the 15% a number.

42

21

54

56

ANS - (A)

Given:

40% of a number is 112

Calculation:

Let the number is x .

$$(40/100) \times x = 112$$

$$\Rightarrow x = (112 \times 100)/40$$

$$\Rightarrow x = 280$$

So, 15% of 280 = 42

\therefore 15% of a number is 42.



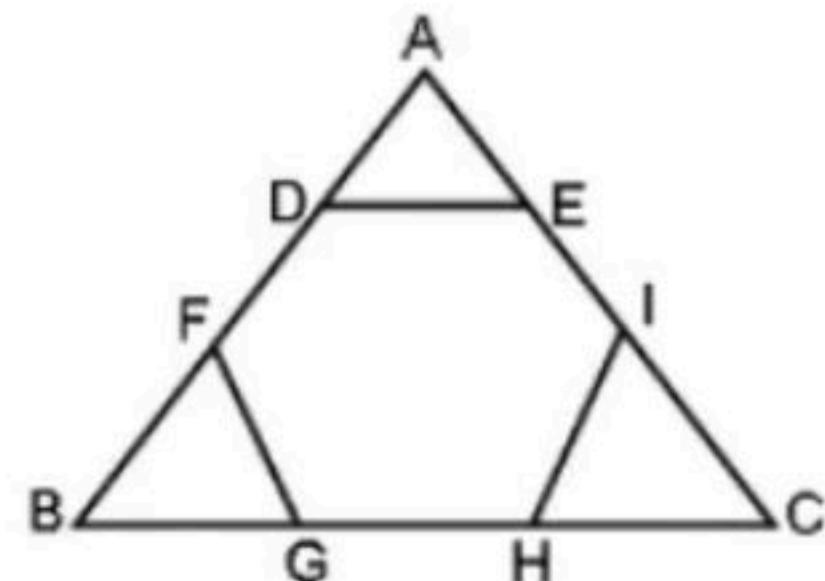


A dark, atmospheric landscape featuring a large, textured rock formation on the left side. In the foreground, there's a body of water with small, white-capped waves. The background is a dark, star-filled sky with a bright, comet-like streak of light extending from the upper right towards the center.

Geometry



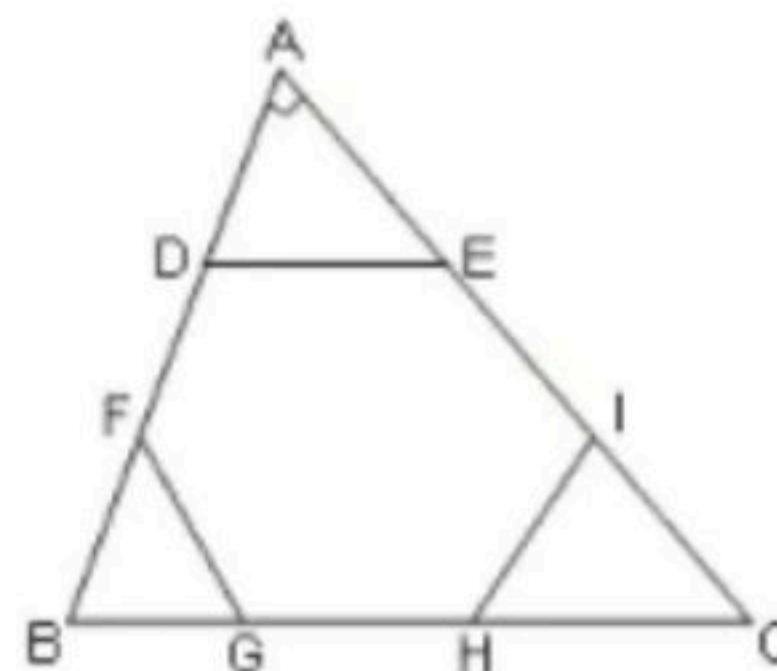
In the following figure, ABC is a right-angled triangle, right-angled at A. AB = 18 cm and AC = 24 cm. DE, FG, HI are parallel to BC, CA and AB, respectively, and DE is such that D cuts the line segment AB in the ratio of 1 : 2. Same is true for G and I. What is the area (in cm^2) of the hexagon DFGHIE?



- 200 cm^2
- 180 cm^2
- 150 cm^2
- 144 cm^2

Ans : (D)

Right Answer Explanation ,



Given $\frac{AD}{DB} = \frac{1}{2}$;

Also, $\frac{1}{2} = \frac{AE}{EC} = \frac{IC}{IA} = \frac{CH}{HB} = \frac{BG}{GC} = \frac{BF}{FA}$

∴ All 3 smaller Δs are similar to the bigger Δ with ratio of sides as 1 : 3.

∴ $\frac{\text{Area of small } \Delta}{\text{Area of big } \Delta} = \frac{1}{9}$

Area of 3 small Δs = $\frac{3}{9} \times \text{Area of big } \Delta = \frac{1}{3} \text{ Area of big } \Delta$

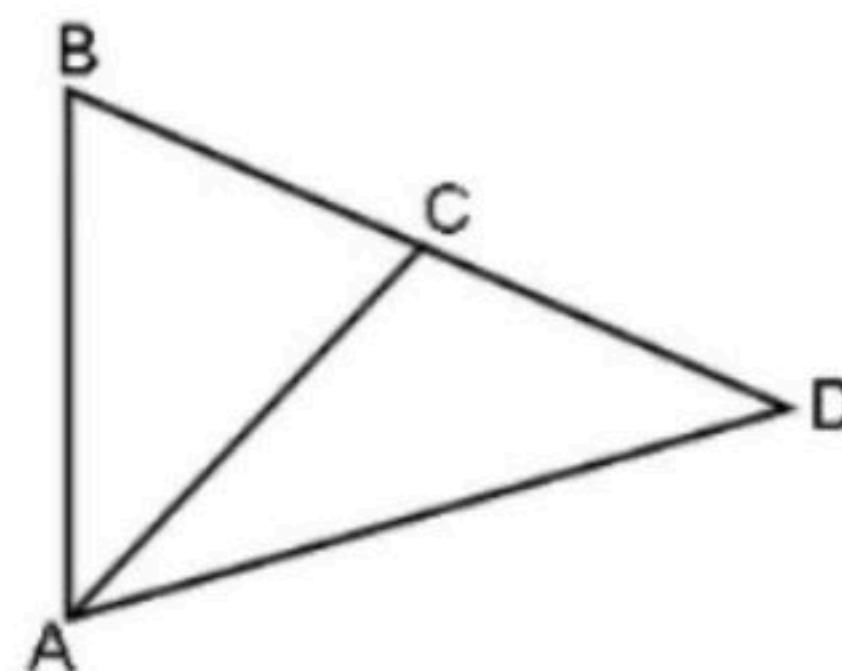
∴ Area of hexagon = $\frac{2}{3} \times \text{Area of } \Delta$

Area of big $\Delta = \frac{1}{2} \times BA \times AC$

Area of big $\Delta = \frac{1}{2} \times 18 \text{ cm} \times 24 \text{ cm} = 9 \text{ cm} \times 24 \text{ cm} = 216 \text{ sq. cm}$

Area of hexagon = $\frac{2}{3} \times 216 \text{ sq. cm} = 2 \times 72 \text{ sq. cm} = 144 \text{ sq. cm}$

In the figure given below, suppose $AB = AC = CD$ and $AD = BD$. Which of the following options is the measure of $\angle ABC$?



36°

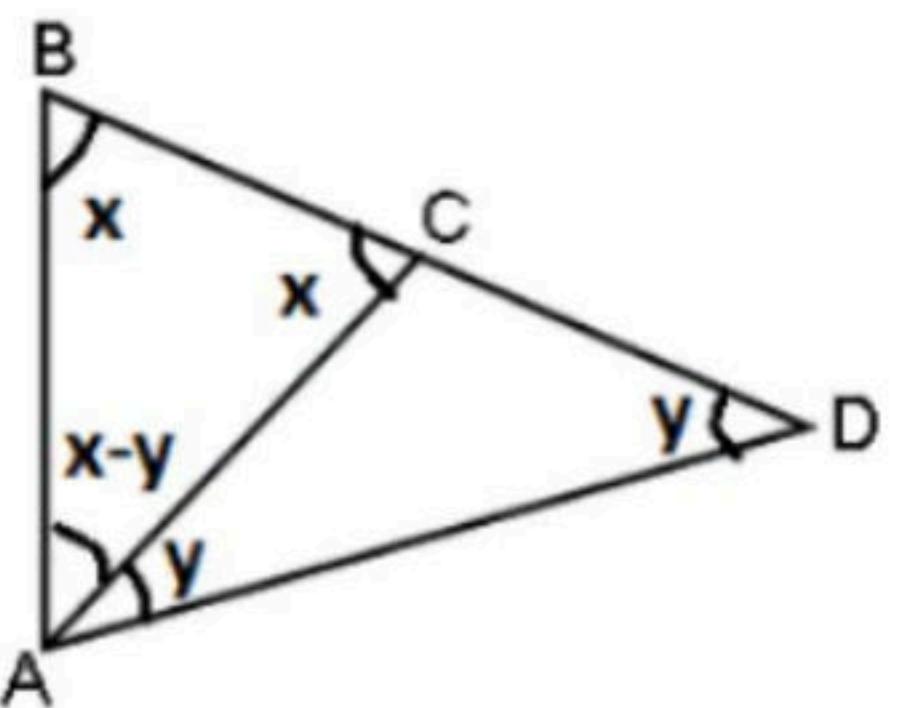
28°

32°

72°

Right Answer Explanation

Ans : (D)



In triangle ABC, $AB = AC$, $\angle ABC = \angle ACB = x$

In triangle ACD, $AC = CD$, $\angle ADC = \angle CAD = y$

In triangle ABD, $AD = BD$, $\angle A = \angle B = x$

In triangle ACD, $\angle BCA = \angle CDA + \angle CAD$

Thus, $x = 2y$

In triangle ADB, $\angle BAD + \angle ADB + \angle DBA = 180^\circ$

$$2x + y = 180^\circ$$

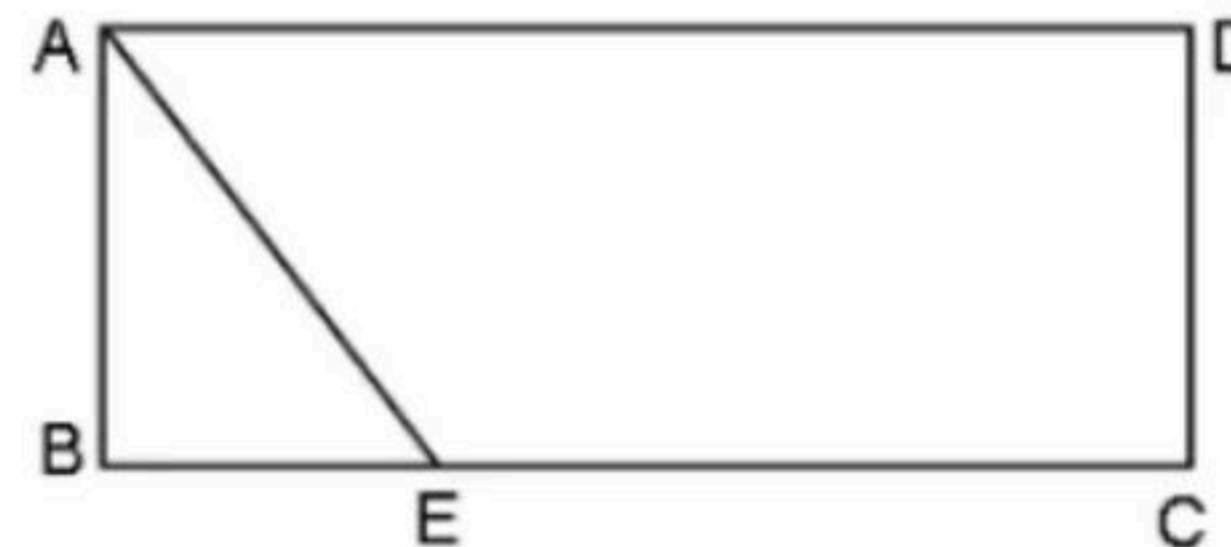
$$5y = 180^\circ$$

$$y = 36^\circ$$

On solving, we get

$$\angle ABC = x = 72^\circ$$

In the given figure, ABCD is a rectangle. The area of the isosceles right triangle ABE = 7 cm^2 , EC = 3(BE). What is the area of ABCD (in cm^2)?



- 21
- 28
- 42
- 56





Ans : ()

Right Answer Explanation

$$\text{Area of triangle ABE} = 7 \text{ cm}^2 = \frac{1}{2} \times AB \times BE$$

$$\Rightarrow AB \times BE = 14$$

$$\text{But } AB = BE$$

$$\Rightarrow AB = BE = \sqrt{14} \text{ cm}$$

$$\text{Also, } EC = 3BE \Rightarrow EC = 3\sqrt{14} \text{ cm}$$

$$\Rightarrow BC = 4\sqrt{14} \text{ cm}$$

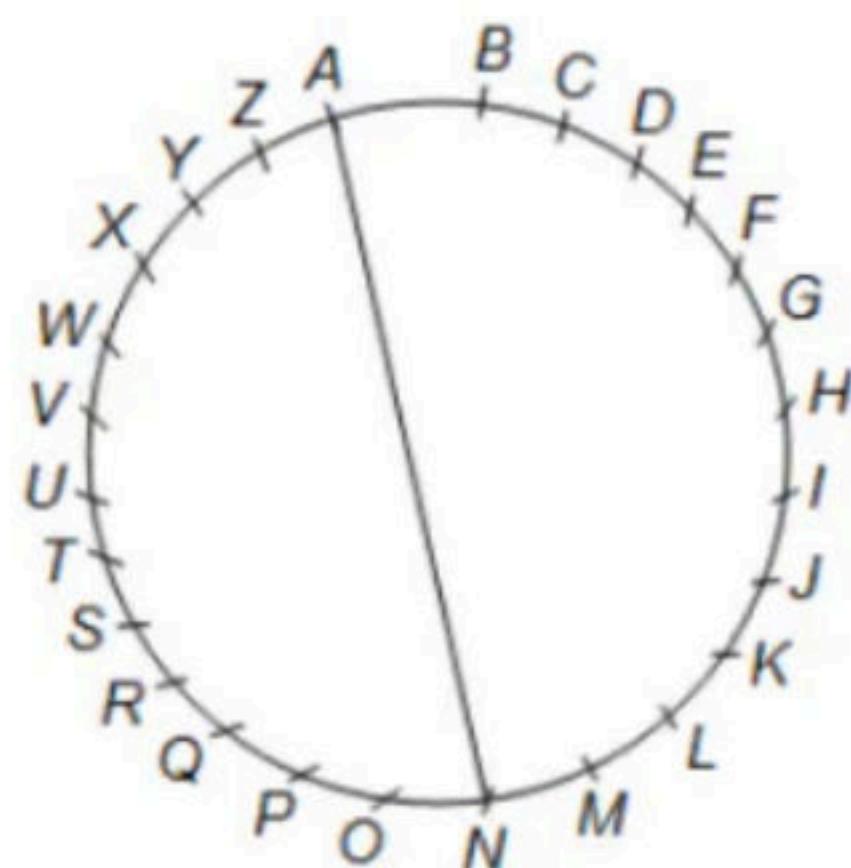
$$\text{Area of rectangle ABCD} = \sqrt{14} \times 4\sqrt{14} = 56 \text{ cm}^2$$

A, B, C, D, E Z are the points marked on the circumference of a circle equidistantly. What can be the maximum number of triangles which can be formed using three points as vertices such that their circumcentre lies on one of the sides of a triangle?

- 24
- 13
- 372
- 312

Ans : (D)

Right Answer Explanation / Suggested Answer :



Circumcentre will lie on one of the sides if the triangle is a right-angled triangle.

So, two of the vertices of the triangle will lie on a diameter of the circle.

So, the points must be equidistant to maximise the number of such triangles.

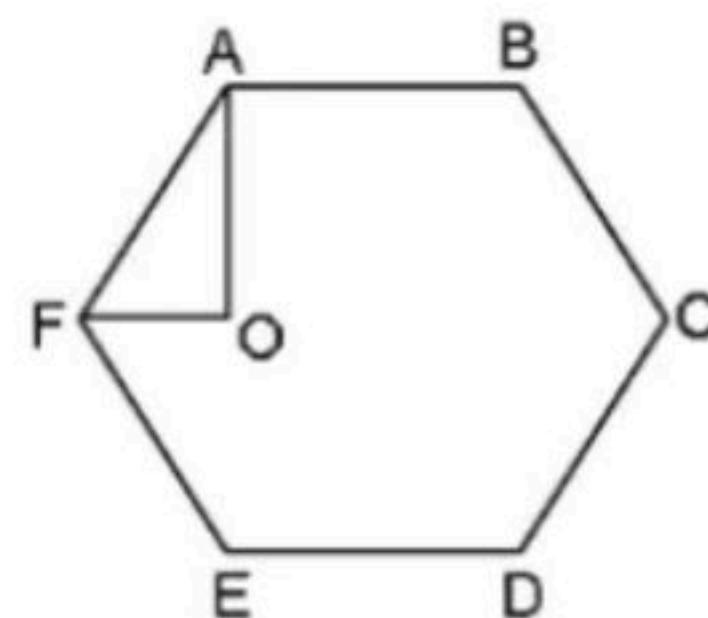
Let AN be one such chosen diameter and hence, one side of a triangle.

It is to be noted that there will be 13 such diameters possible.

So, third vertex of the triangle can be chosen from any of the other 24 points left (other 24 points leaving A and N).

Possible total number of such triangles = $13 \times 24 = 312$.

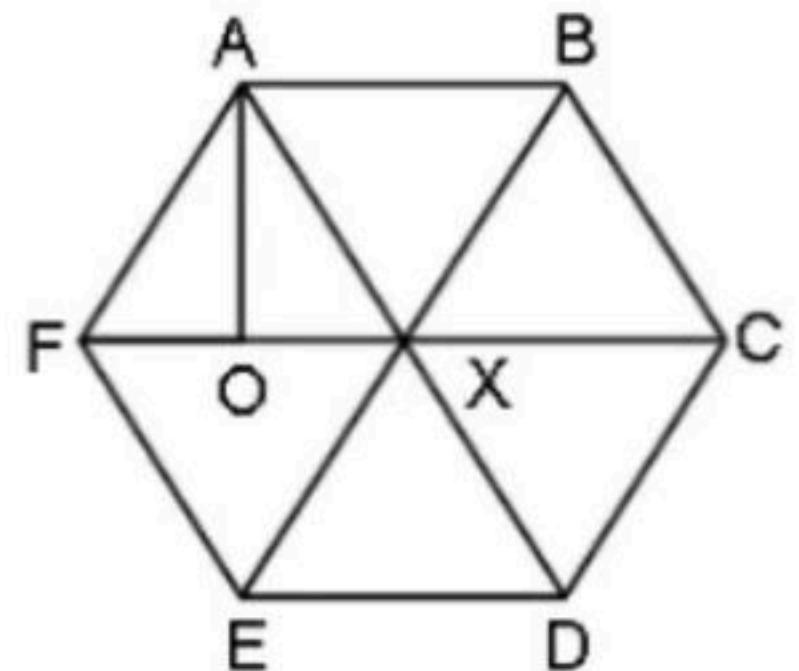
In the figure, ABCDEF is a regular hexagon and $\angle AOF = 90^\circ$. FO is parallel to ED. What is the ratio of the area of the triangle AOF to that of the hexagon ABCDEF?



- $\frac{1}{12}$
- $\frac{1}{6}$
- $\frac{1}{24}$
- $\frac{1}{18}$

Ans : (A)

Right Answer Explanation



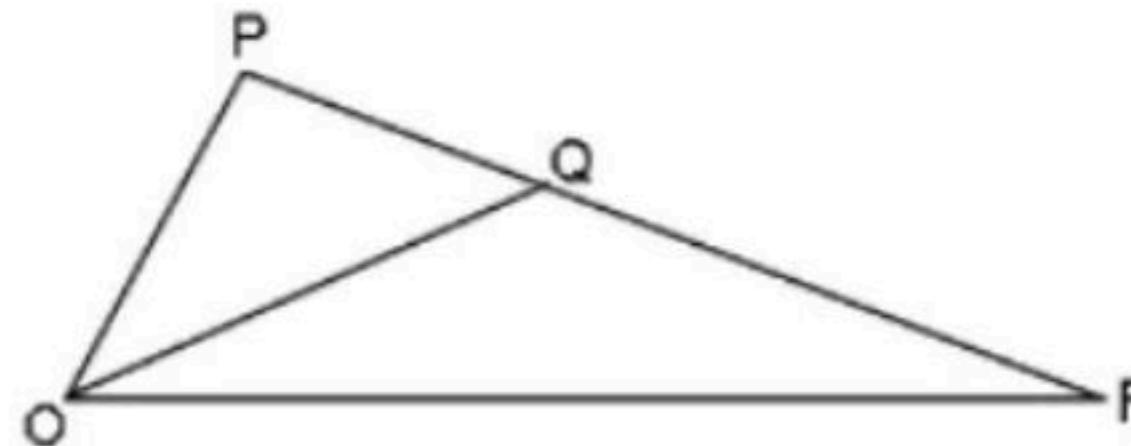
After joining all the opposite vertices (let them meet at point X), we find that right triangle $\triangle AOF \cong$ Right triangle $\triangle AOX$.

\Rightarrow Area of $\triangle AOX$ = Area of $\triangle AOF$

$$\frac{\text{Area}[\text{triangle } AOF]}{\text{Area}[\text{hexagon } ABCDEF]} = \frac{\text{Area}[\text{triangle } AOF]}{6[\text{Area}(\text{triangle } AFX)]}$$

$$= \frac{\text{Area}[\text{triangle } AOF]}{6[2 \text{Area}(\text{triangle } AOF)]} = \frac{1}{12}$$

In the triangle shown below, angle POR is 60° . Assume that the line segments OQ and QR have the same length and the line segments OP and PQ have the same length. Find angle QRO.

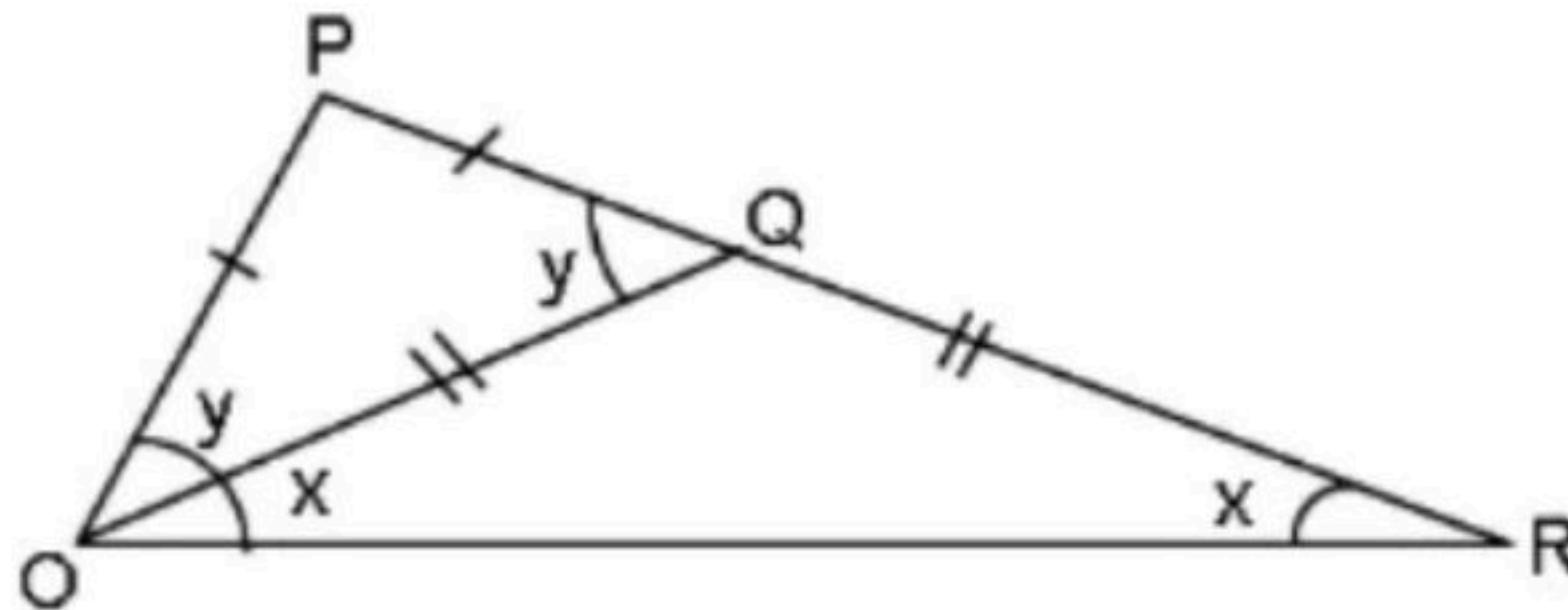


- 18°
- 20°
- 22.5°
- 26°



Right Answer Explanation

Ans : (B)



In $\triangle OQP$, $OP = PQ$

$\angle PQO = \angle POQ = y$

Similarly, in $\triangle OQR$, $OQ = QR$.

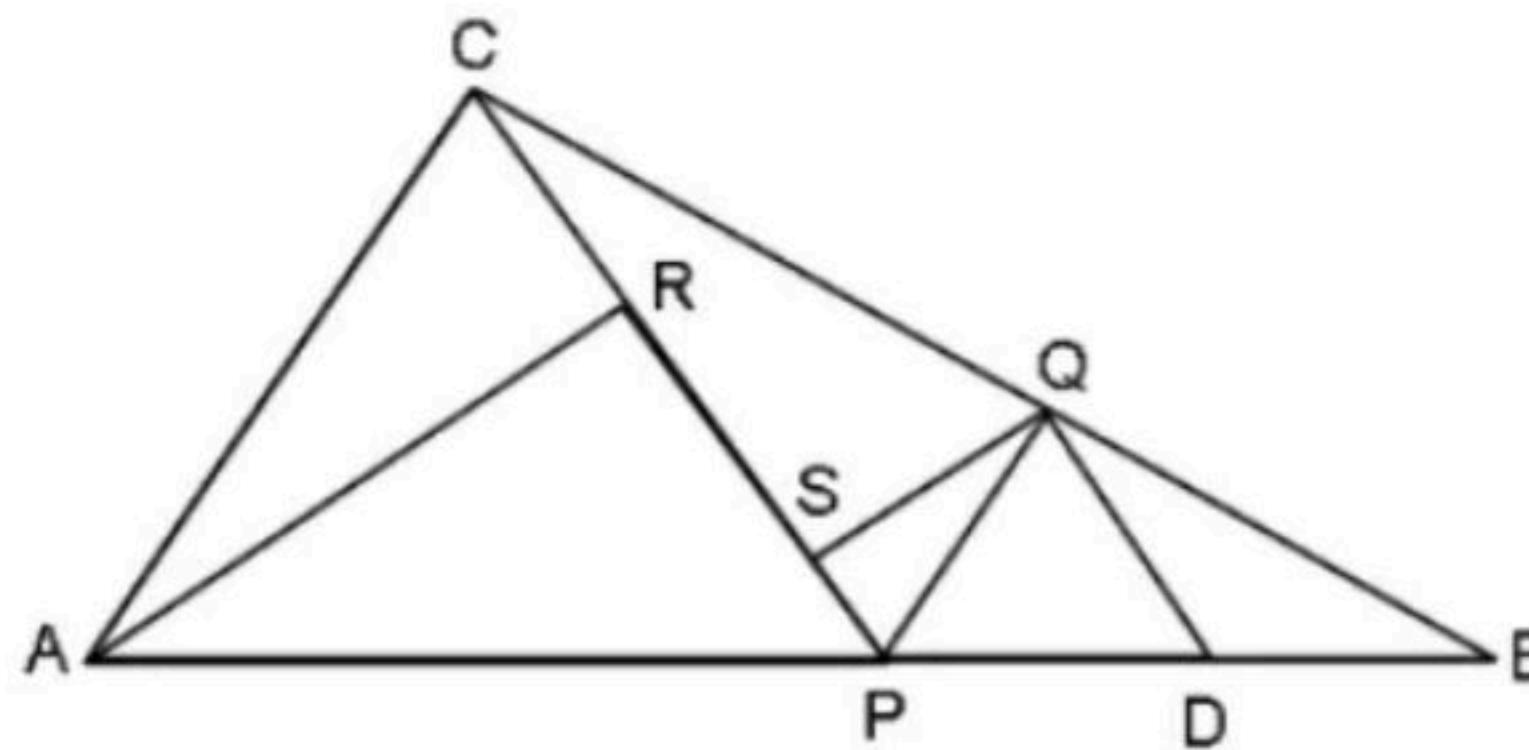
$\angle QRO = \angle QOR = x$

$y = 2x$ (Sum of interior angles is equal to exterior angle)

Also, $y + x = 60^\circ$ (Given: $\angle POR = 60^\circ$)

$3x = 60^\circ$ or $x = 20^\circ$

In the figure (not drawn to scale), P is a point on AB such that $AP : PB = 4 : 3$. PQ is parallel to AC and QD is parallel to CP. In $\triangle ACR$, $\angle ARC = 90^\circ$ and in $\triangle PQS$, $\angle PSQ = 90^\circ$. The length of QS is 6 cm. What is the ratio of AP : PD?

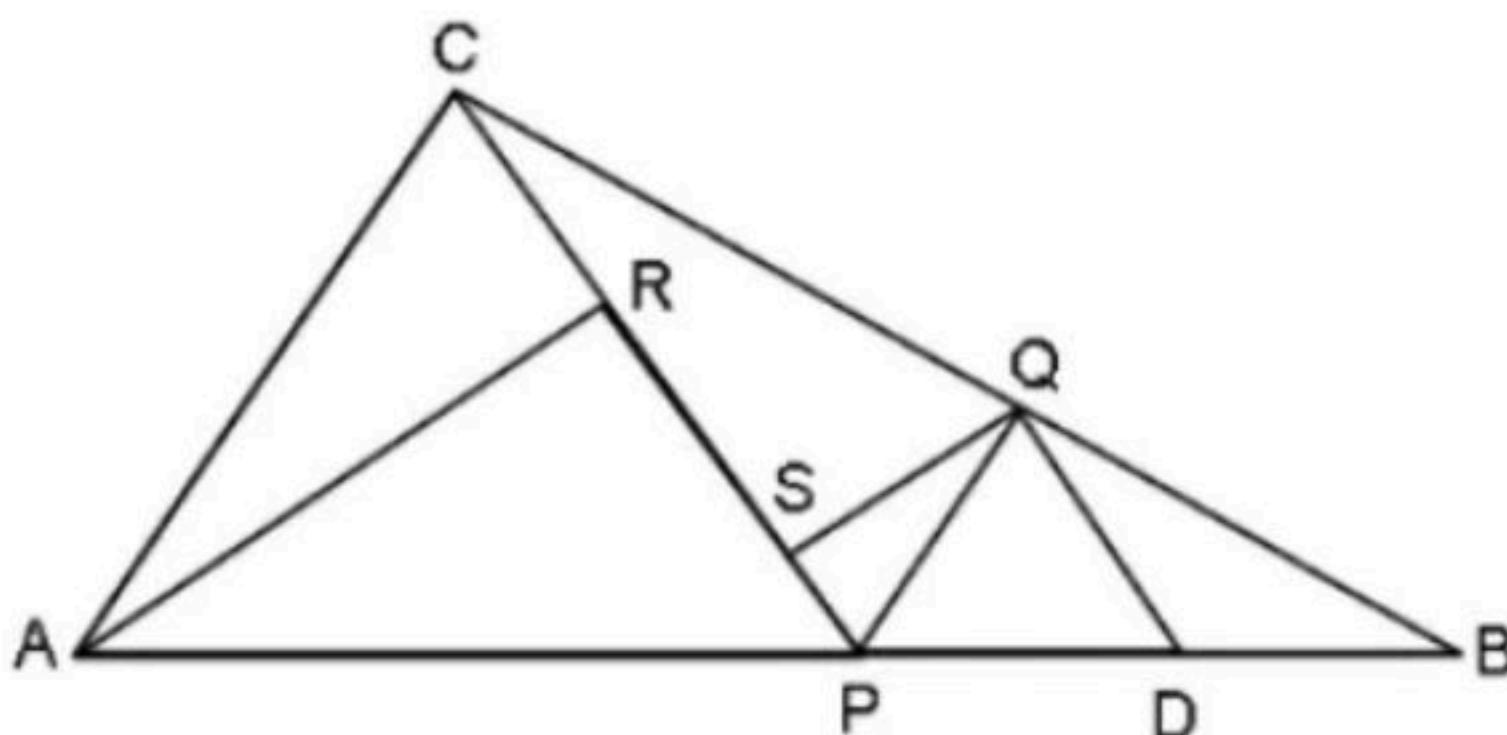


- 10 : 3
- 2 : 3
- 7 : 3
- 8 : 3



Right Answer Explanation

Ans : (C)



According to the given information, $\frac{AP}{PB} = \frac{4}{3}$.

$PQ \parallel AC$ and $QD \parallel CP$.

Triangles ABC and PBQ are similar (by AAA).

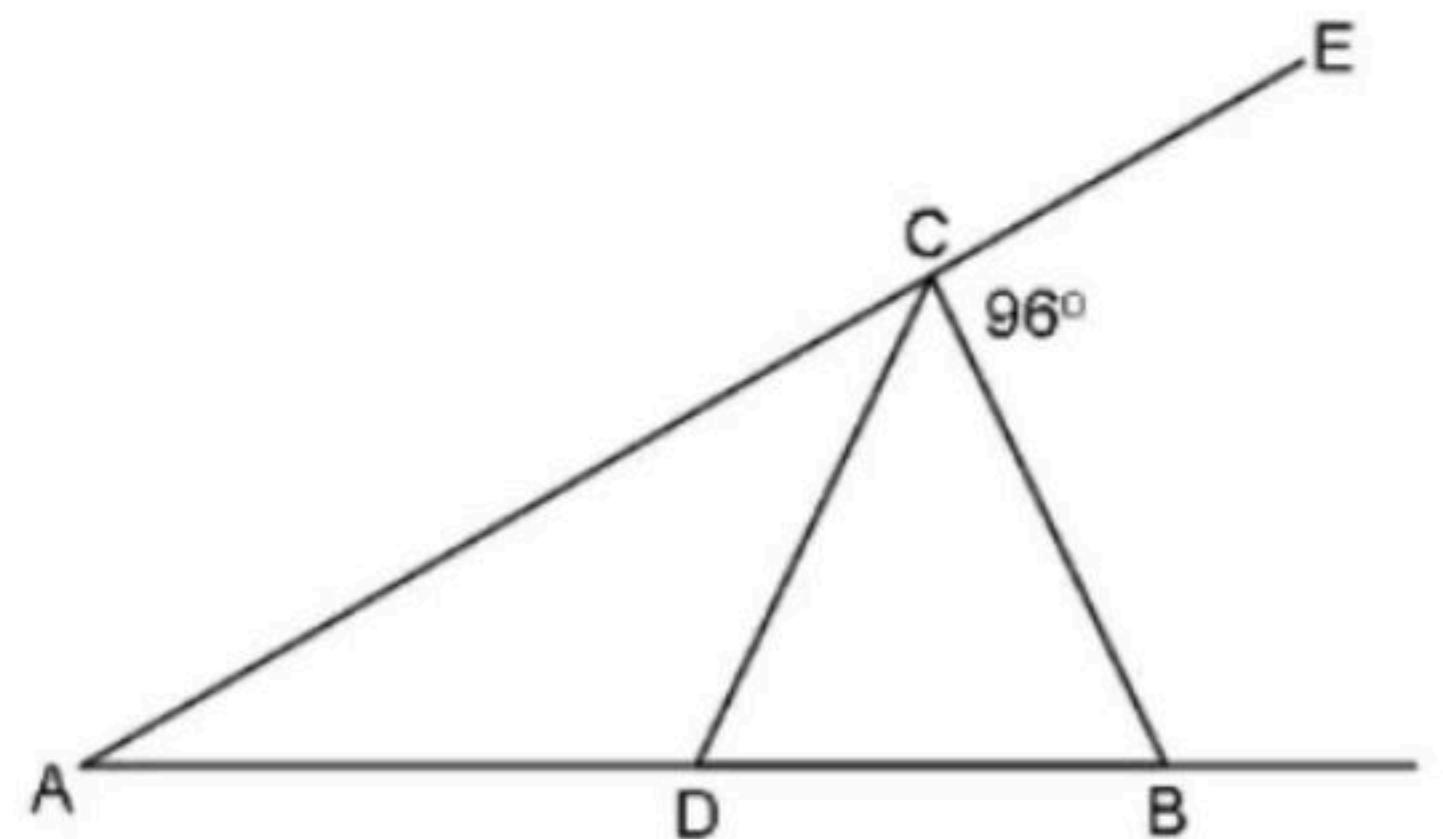
Therefore, $\frac{CQ}{QB} = \frac{4}{3}$

Similarly, triangles PBC and DBQ are similar and $\frac{PD}{DB} = \frac{CQ}{QB} = \frac{4}{3}$.

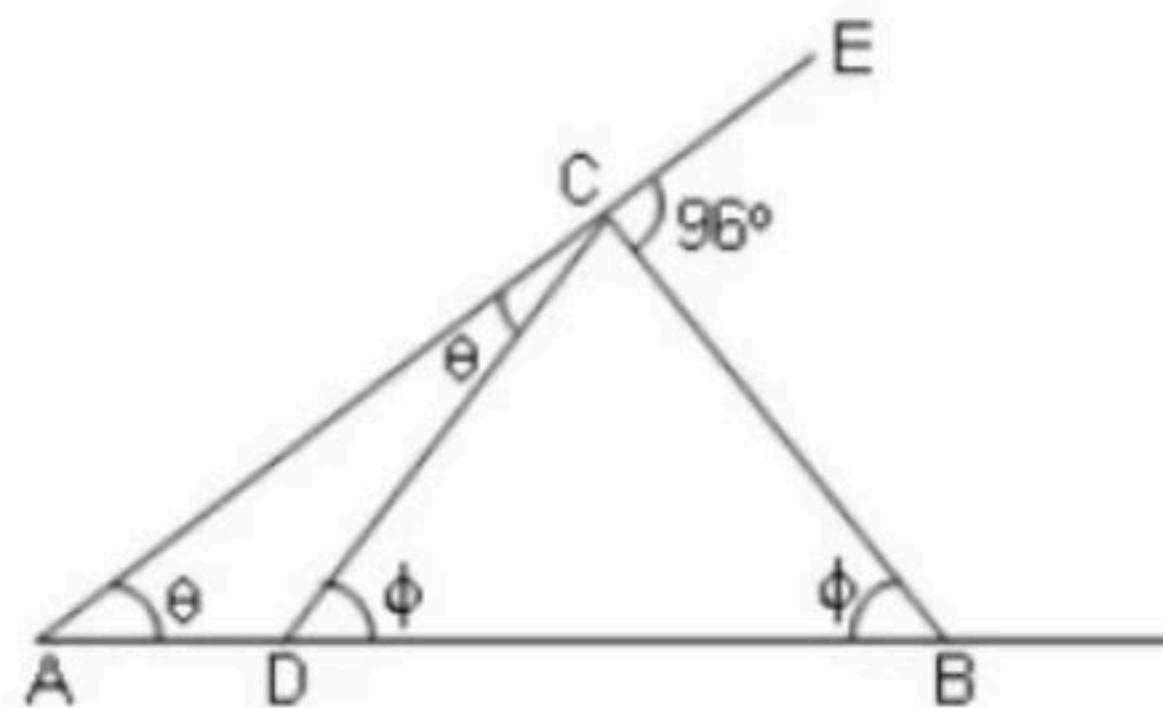
If $AP = 4x$ and $PB = 3x$, then $DB = \frac{9x}{7}$ and $PD = \frac{12x}{7}$

So, $\frac{AP}{PD} = \frac{7}{3}$

In the given figure, if $AD = CD = BC$ and $\angle BCE = 96^\circ$, then what is the measure of $\angle DBC$?



- 32°
- 54°
- 64°
- 84°

Ans : (C)

Let $\angle DAC = \angle ACD = \theta$ {Angles opposite to equal sides are equal}

$$\angle CDB = \angle CBD = \phi$$

Now, $\angle CDB$ is the exterior angle of $\triangle ACD$

$$\phi = 2\theta$$

Now, in $\triangle DCB$

$$\angle DCB + \angle CBD + \angle CDB = 180^\circ \quad \text{(Sum of angles in a triangle is } 180^\circ\text{)}$$

$$\angle DCB + \phi + \phi = 180^\circ$$

$$\angle DCB = 180^\circ - 2\phi$$

$$= 180^\circ - 2(2\theta)$$

$$= 180^\circ - 4\theta$$



Now, $\angle ACD + \angle DCB + \angle ECB = 180^\circ$ {Sum of linear angles is 180° }

$$\theta + (180^\circ - 4\theta) + 96^\circ = 180^\circ$$

$$\theta + 180^\circ - 4\theta + 96^\circ = 180^\circ$$

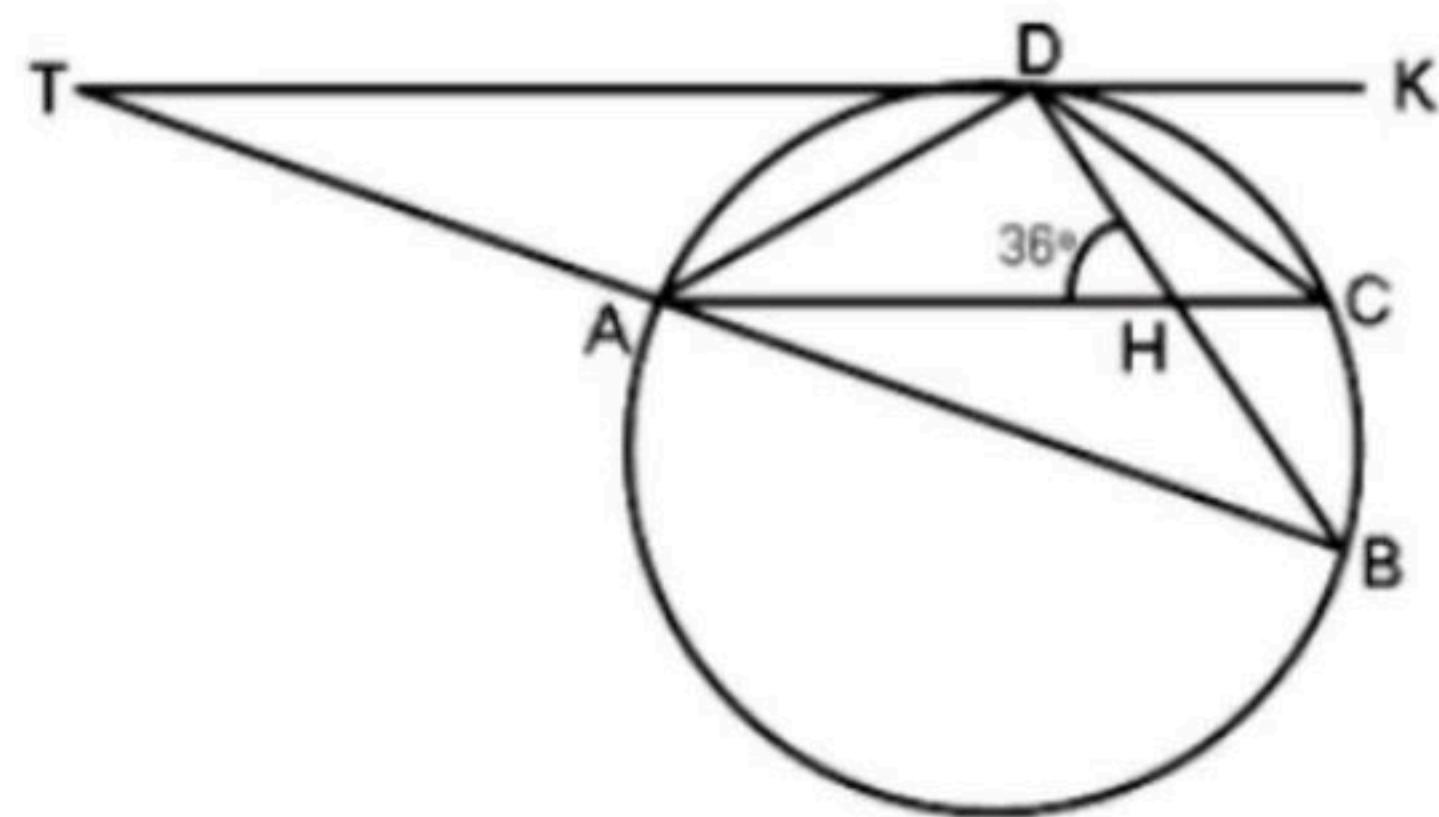
$$180^\circ - 180^\circ + 96^\circ = 3\theta$$

$$3\theta = 96^\circ$$

$$\theta = 32^\circ$$

$$\angle DBC = \phi = 2\theta = 2 \times 32^\circ = 64^\circ$$

In the figure given below, AB is a diameter of the circle, TD is a tangent to the circle and $AB = 2AD$. If $\angle AHD = 36^\circ$ and $\angle DBA = 30^\circ$, then what is the measure of $\angle CDT$?



- 100°
- 110°
- 116°
- 126°



Ans : (D)

Right Answer Explanation

$$\angle BDA = 90^\circ, \angle AHD = 36^\circ, AB = 2AD$$

$$\angle DBA = 30^\circ$$

So, $\angle DCA = 30^\circ$ (because angles by the same segment at the circumference are equal)

Now, we know that triangle ABD is a right triangle.

$$\text{So, } \angle DAB = 60^\circ \text{ and } \angle DBA = 30^\circ$$

$\angle TDA = \angle DBA$ (Angles in alternate segment)

$$\angle DCA = 30^\circ$$

$\angle CDH = 6^\circ$ (Exterior angle = Sum of interior opposite triangles for triangle DCH)

$$\angle CDT = 6 + 90 + 30 = 126^\circ$$

Hence, 126° is the correct answer.

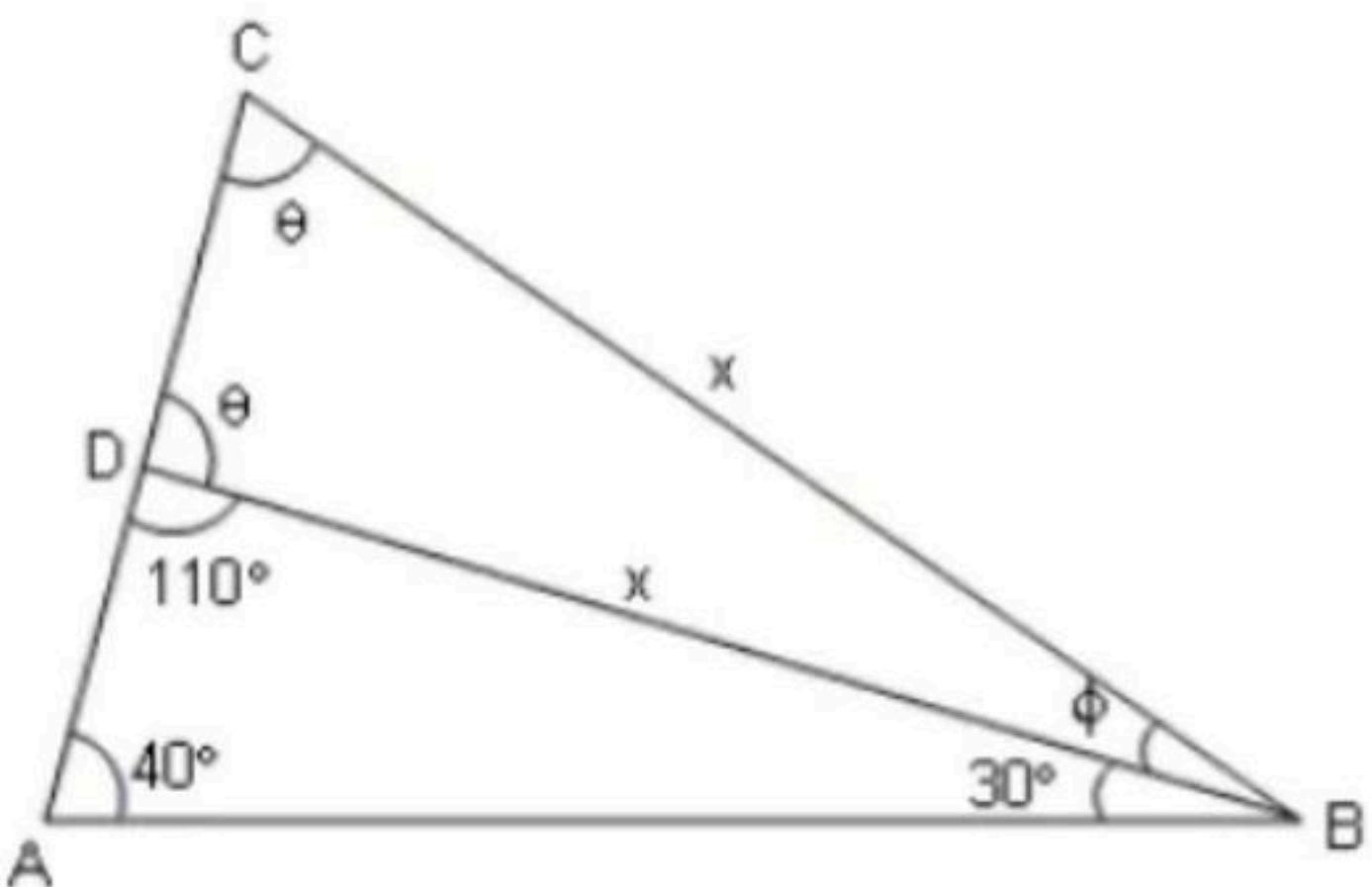
In $\triangle ABC$, $\angle A = 40^\circ$. D is a point on AC such that $BD = BC$. If $\angle ABD = 30^\circ$, find the measure of $\angle ABC$.

- 30°
- 50°
- 60°
- 70°



Right Answer Explanation ,

Ans : (D)



$\angle BCD = \angle BDC = \theta$ ($\triangle DBC$ is isosceles)

$110^\circ = \theta + \phi$ (Exterior angle)

$2\theta + \phi = 180^\circ$ ($\triangle CDB \rightarrow$ Angle sum property)

or $\theta + \phi + \theta = 180^\circ$

or $\theta = 180^\circ - 110^\circ = 70^\circ$

$\phi = 110^\circ - 70^\circ = 40^\circ$

$\angle ABC = 30^\circ + \phi = 30^\circ + 40^\circ = 70^\circ$

Hence, option (4) is correct.



What is the maximum number of dogs that can be tied in a spherical hall such that all the dogs are equidistant from each other?

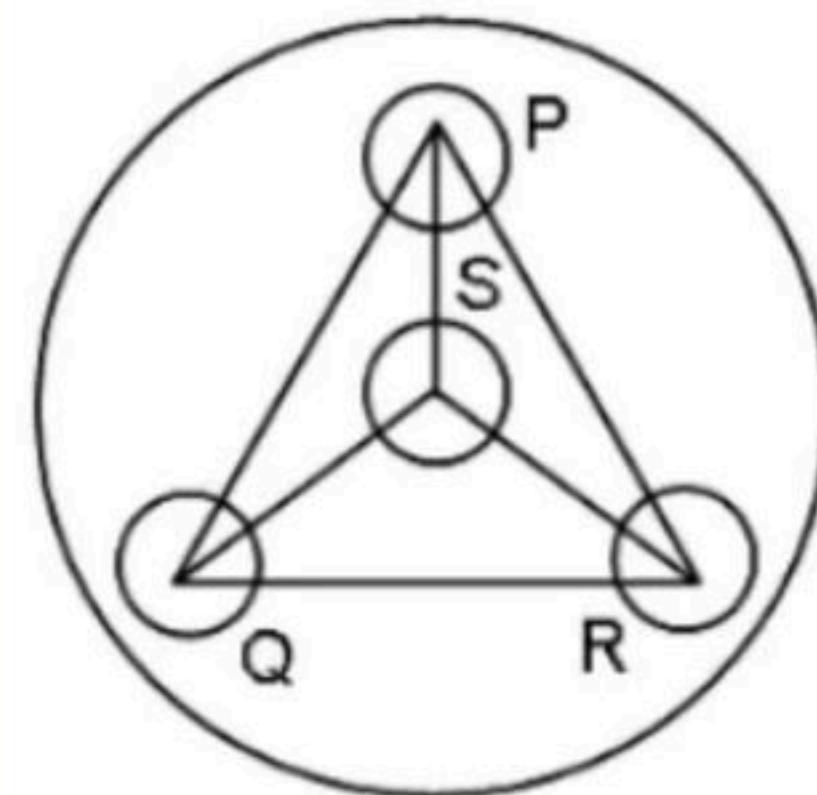
- 4
- 5
- 2
- Infinite

Ans : (A)

Right Answer Explanation

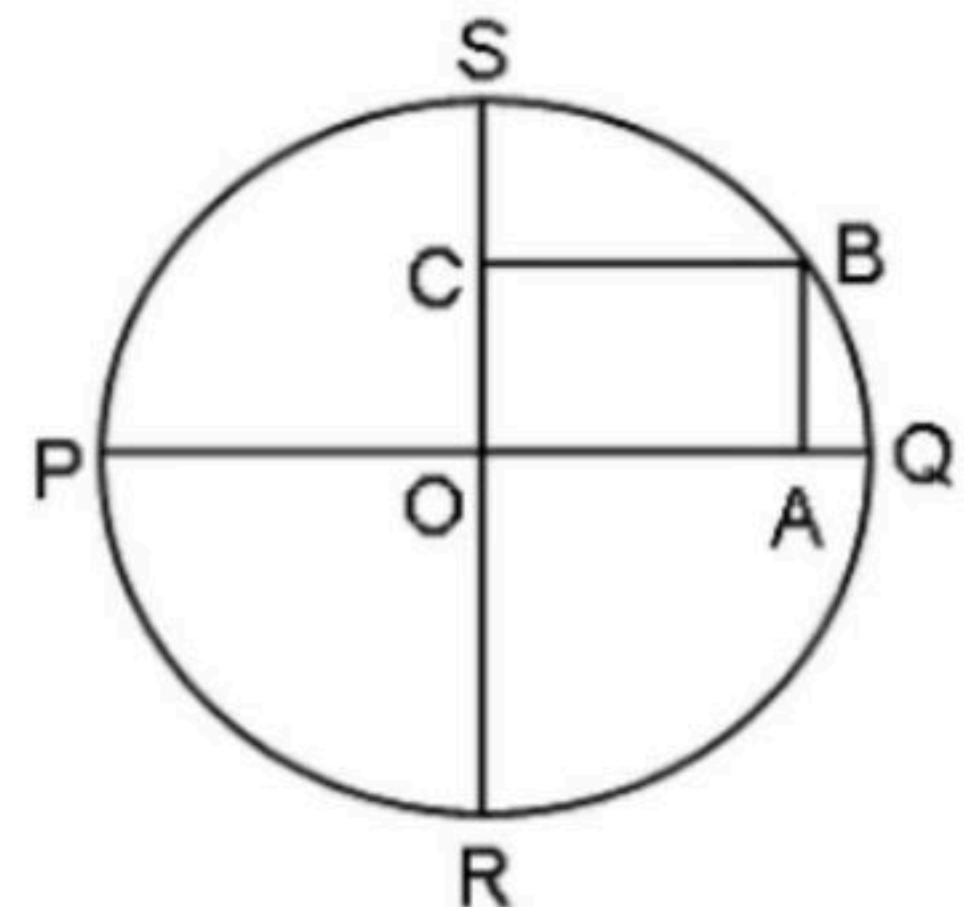
Let the dogs be tied at P, Q, R and S, where P, Q and R are in one plane, and S is in a different plane.

Note: $PS = QS = RS = PQ = QR = RS$



ΔPQS , ΔPSR and ΔQSR are congruent and equilateral.

In the figure below, OABC is a rectangle. PQ and RS are perpendicular diameters of length $20\sqrt{2}$.

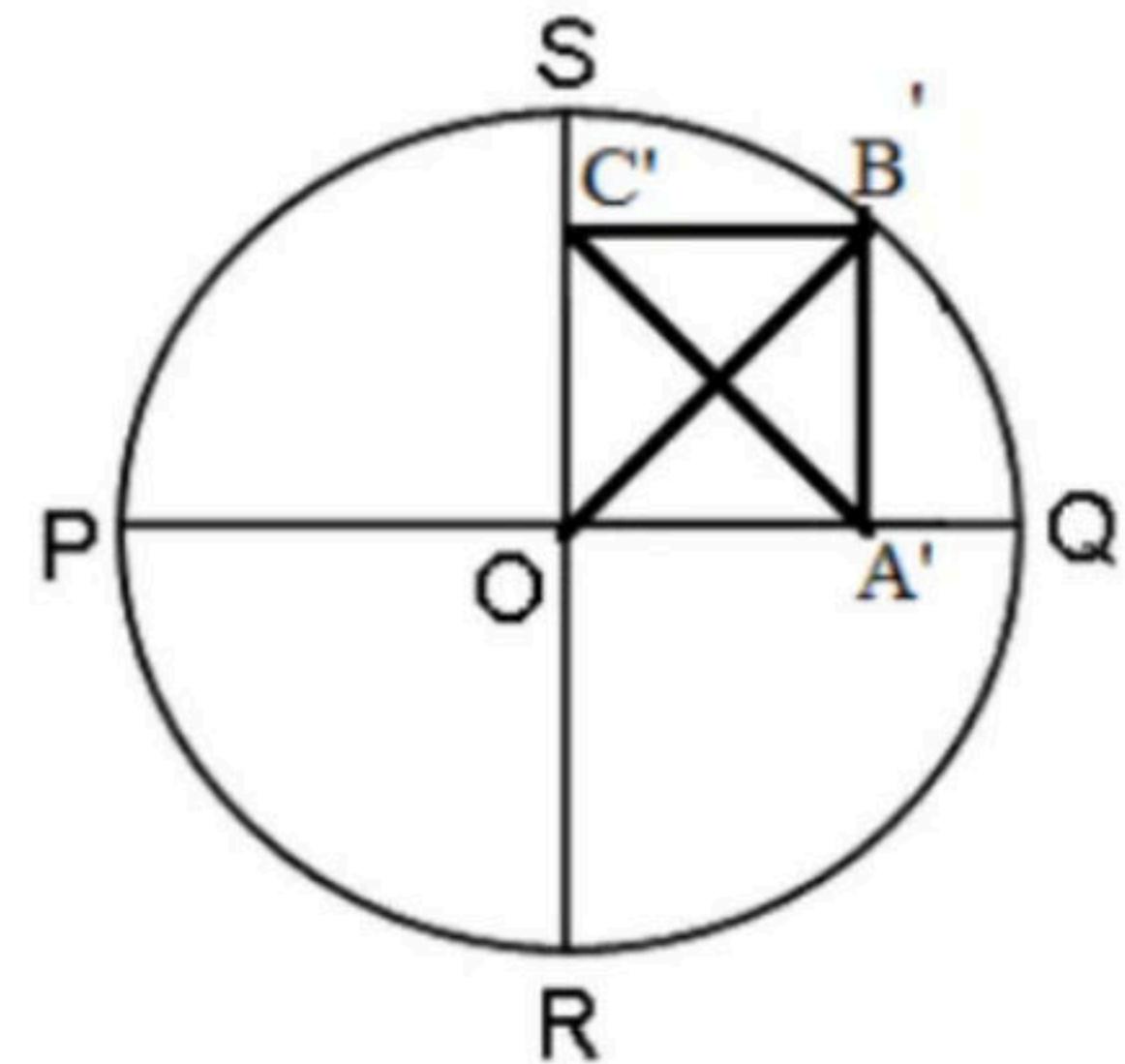


If point B is moved towards S and OA'BC' is the new rectangle, then length A'C' will be equal to _____.

- $2AC$
- $AC/2$
- \sqrt{AC}
- AC

Ans : (D)

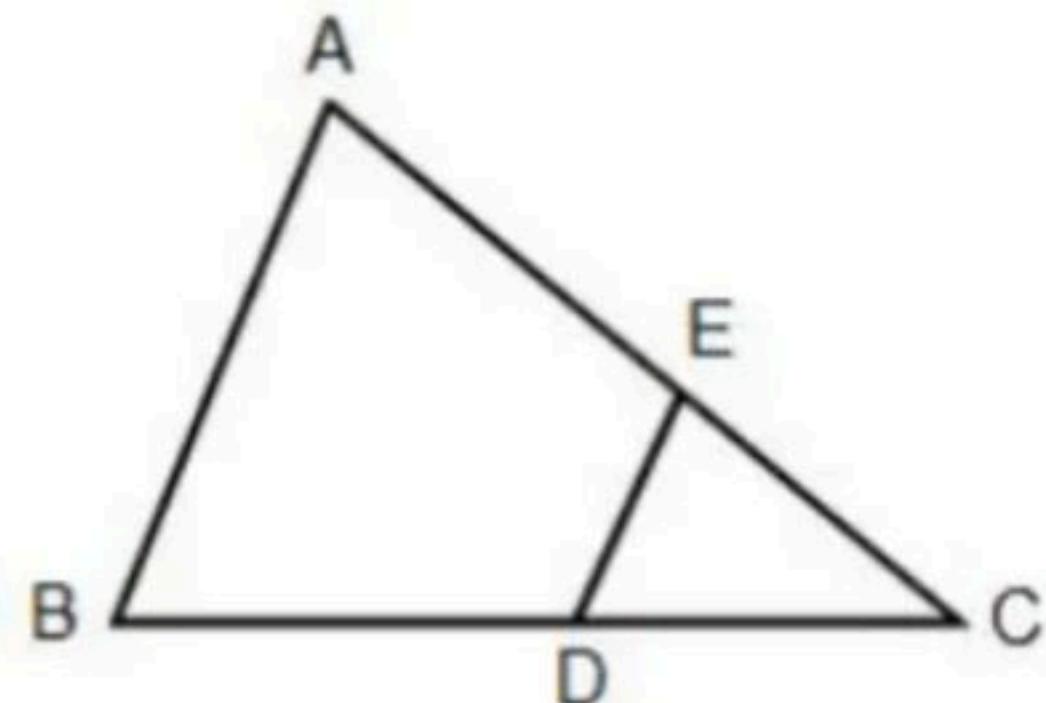
Right Answer Explanation



If B moves towards S, the diagonal OB' will still be equal to the radius of the circle.

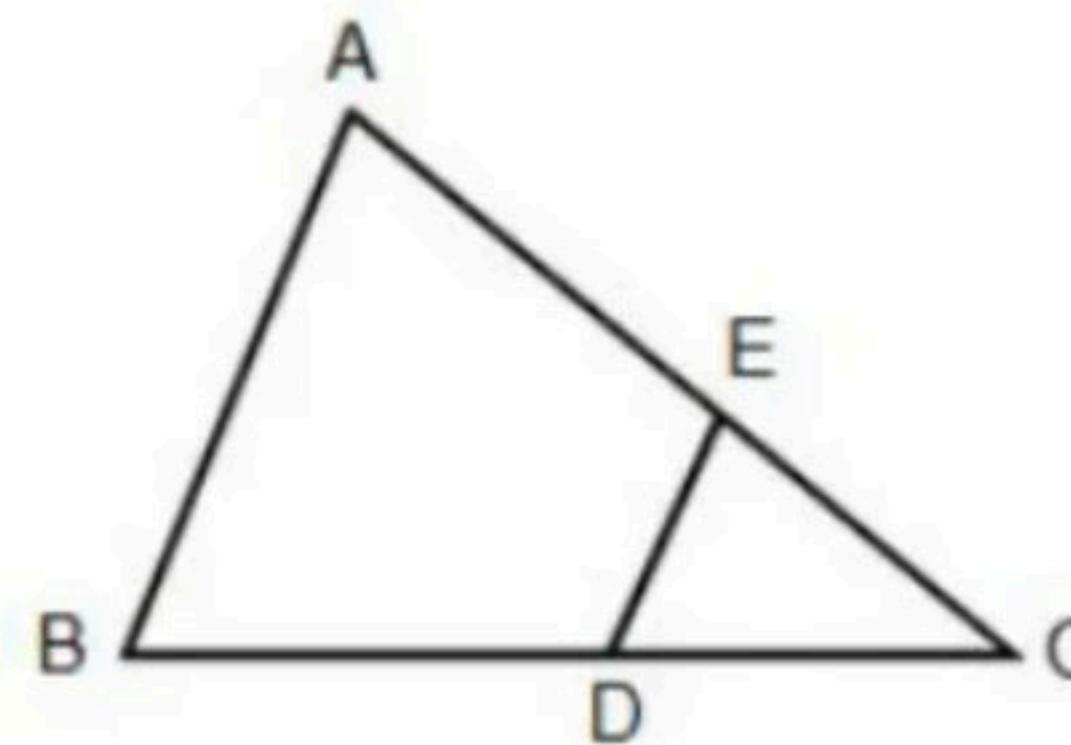
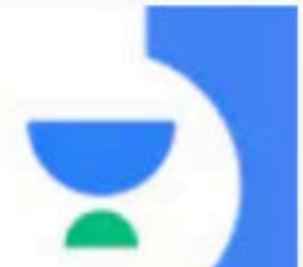
Since both the diagonals of a rectangle are equal, A'C' will also be equal to the radius.

In triangle ABC given below, $BD = 2DC$. Segment DE is parallel to AB. If the area of quadrilateral ABDE is 64 sq. cm, what is the area of triangle ABC?



- 56 sq. cm
- 72 sq. cm
- 81 sq. cm
- 91 sq. cm

Ans : (B) Right Answer Explanation



Let $DC = x$

$BD = 2x$ (Given: $BD = 2DC$)

Since, $DE \parallel AB$

ΔEDC is similar to ΔABC .

$$\frac{\text{area of } \Delta ABC}{\text{area of } \Delta EDC} = \frac{BC^2}{DC^2}$$

$$\Rightarrow \frac{9x^2}{x^2} = 9$$

$$\frac{\text{area of } \Delta ABC}{\text{area of } \Delta EDC} = \frac{\text{area of } \square ABDE + \text{area of } \Delta EDC}{\text{area of } \Delta EDC} = 9$$

$$\Rightarrow \frac{64 + y}{y} = 9 \quad \{y \text{ sq. cm} = \text{area of triangle EDC}\}$$

$$\Rightarrow 64 + y = 9y$$

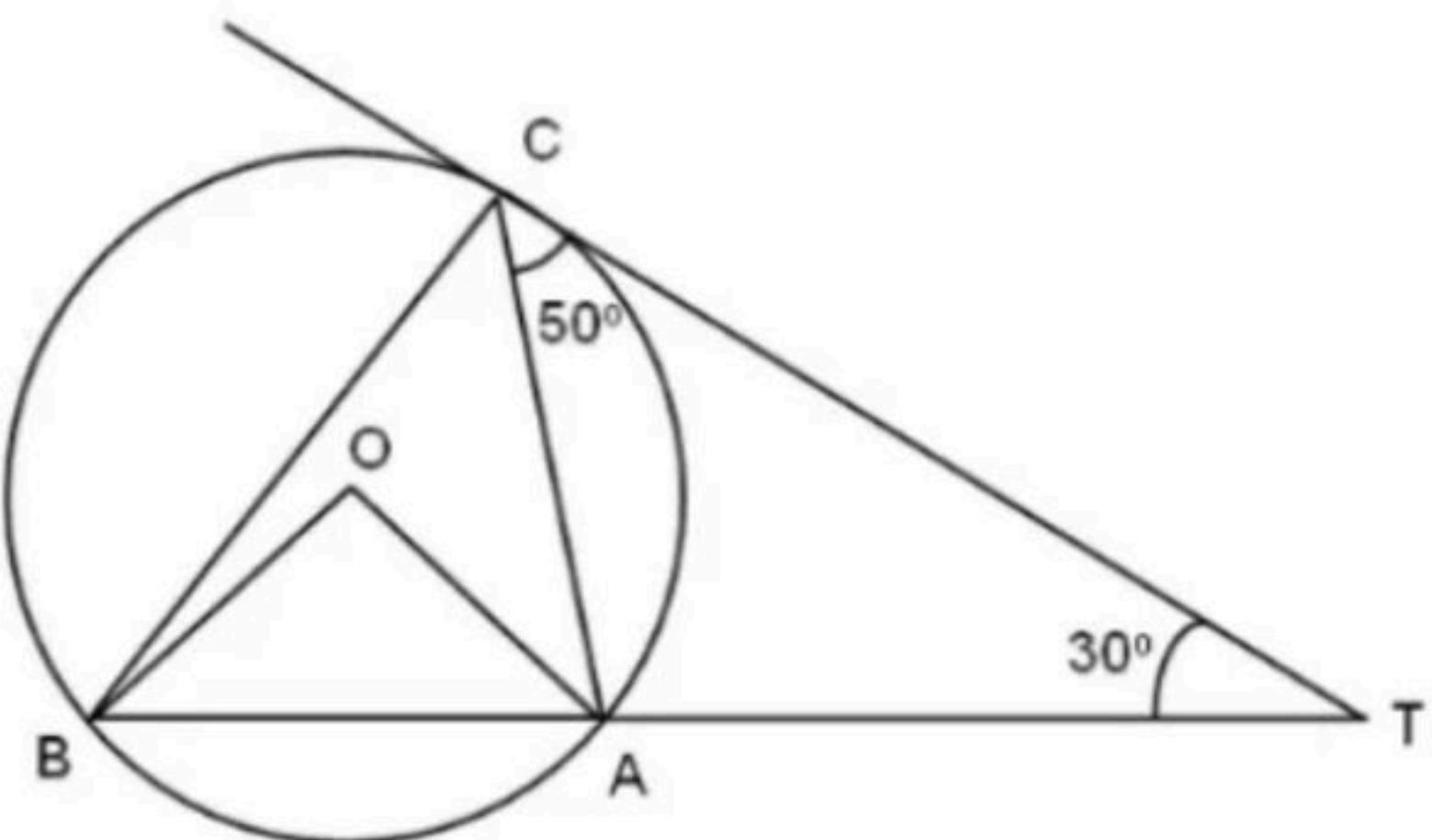
$$\Rightarrow 64 = 8y$$

$$\Rightarrow y = 8$$

Area of ΔABC = area of quadrilateral $ABDE$ + area of triangle EDC = $(64 + 8)$ sq. cm = 72 sq. cm

Hence, 72 sq. cm is the correct answer.

In the figure (not drawn to scale), A, B and C are three points on a circle with centre O. The chord BA is extended to a point T, such that CT becomes a tangent to the circle at point C. If $\angle ATC = 30^\circ$ and $\angle ACT = 50^\circ$, find the measure of angle $\angle BOA$.



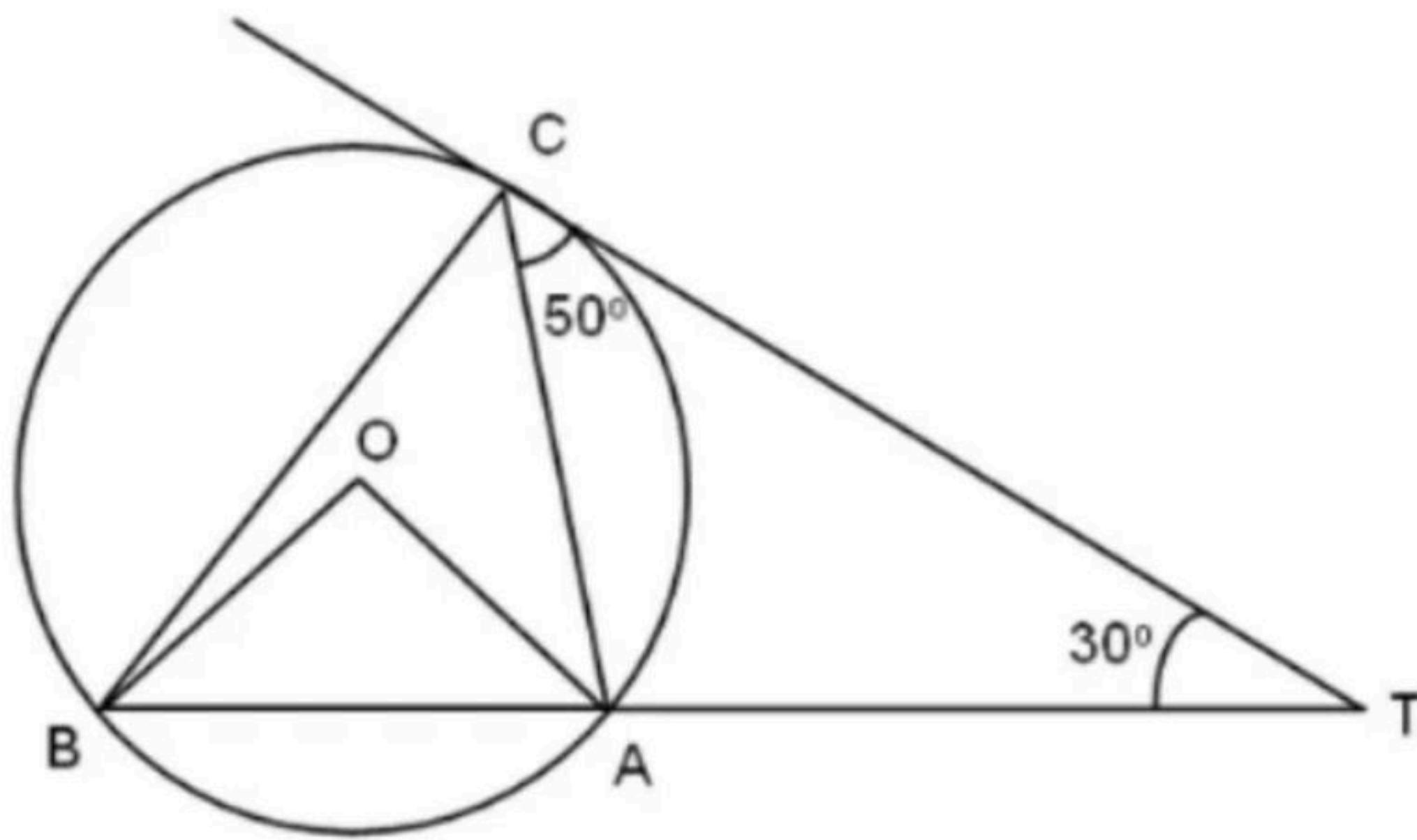
- 100°
- 110°
- 120°
- None of these



Right Answer Explanation

Ans : ()

According to the given information: $\angle CAT = 100^\circ$ and $\angle BAC = 80^\circ$

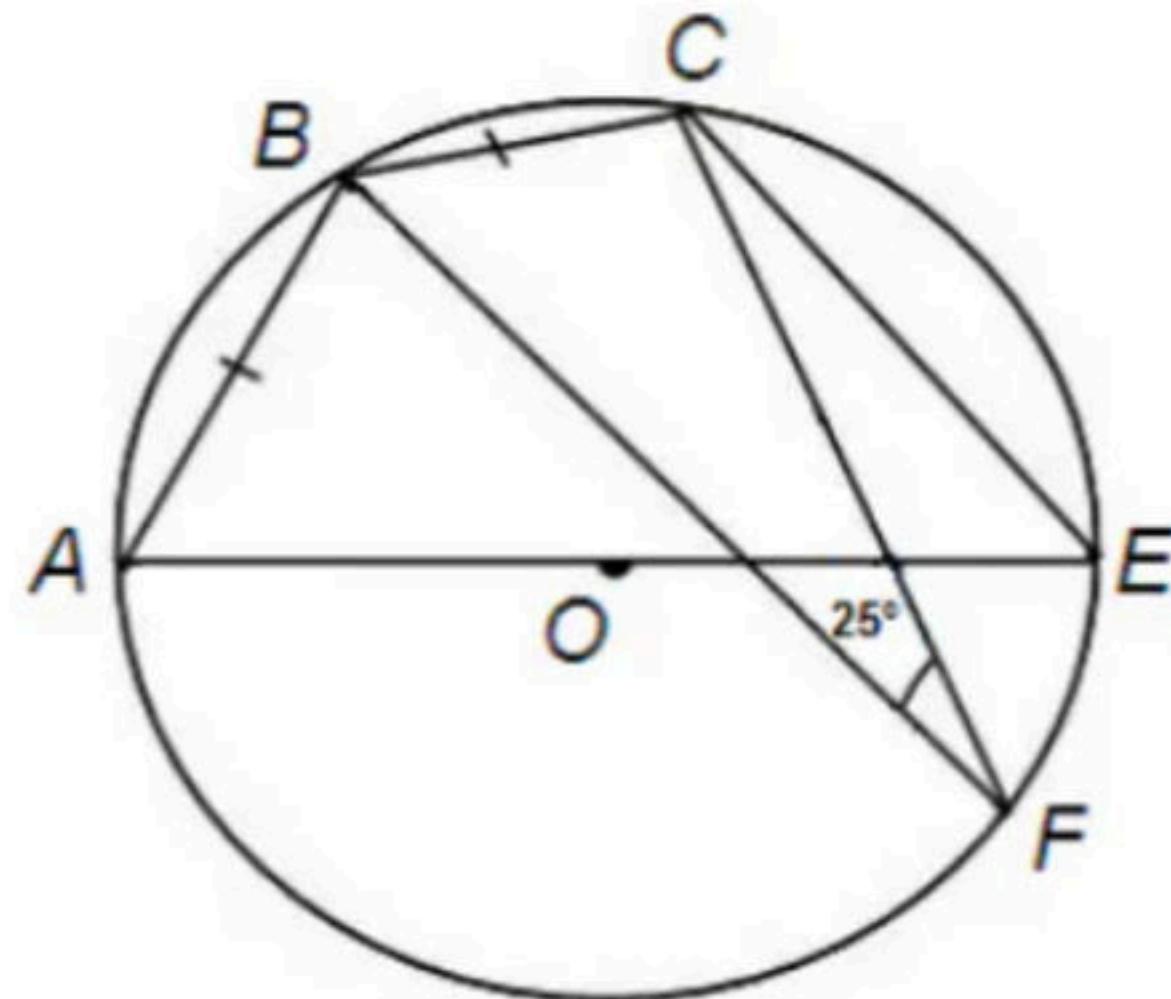


$\angle ABC = 50^\circ = \angle ACT$ (\because Angles are in the alternate segment)

$$\angle BCA = 180^\circ - (80^\circ + 50^\circ) = 180^\circ - 130^\circ = 50^\circ$$

$$\text{Hence, } \angle BOA = 2 \times \angle BCA = 100^\circ$$

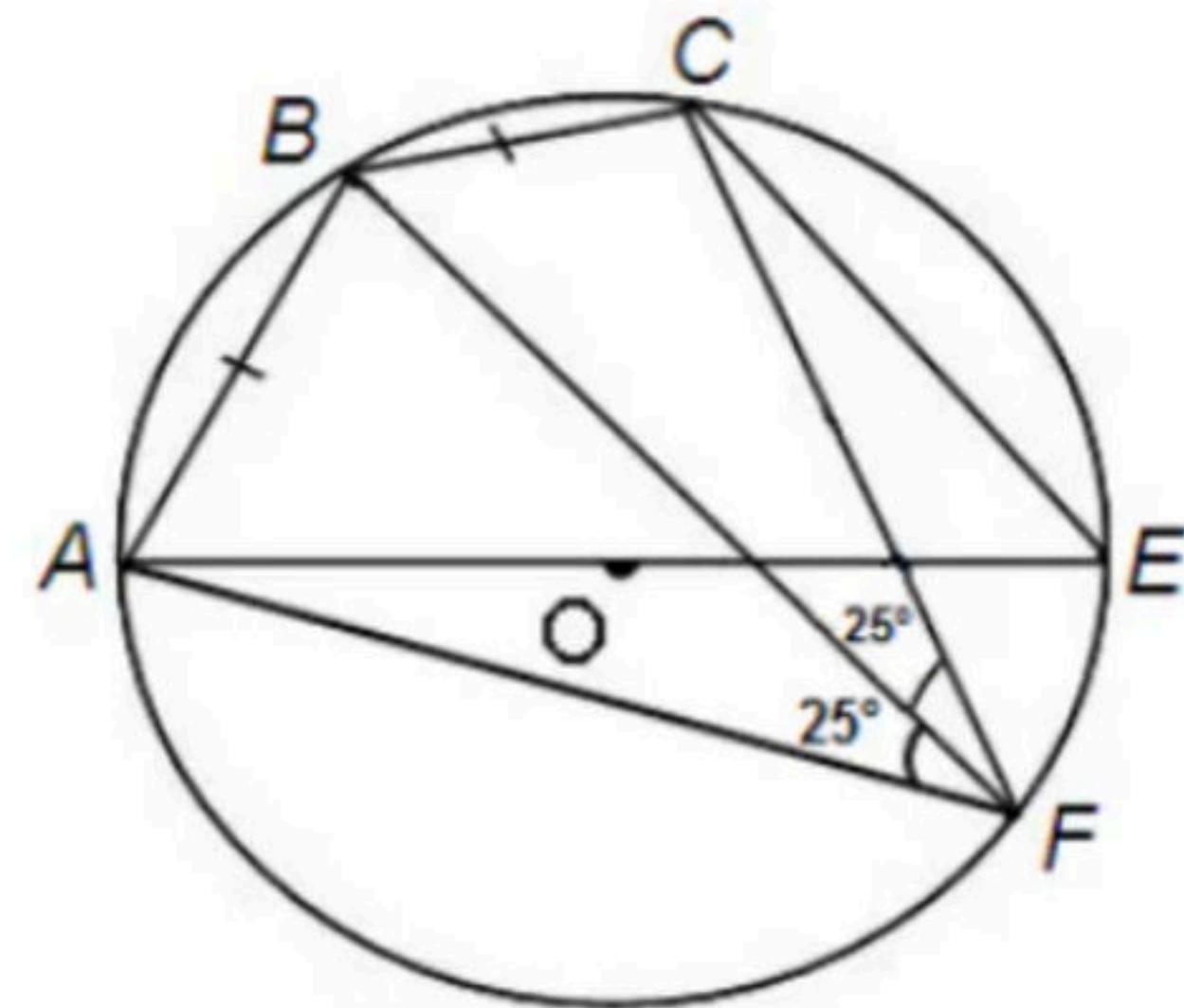
In the given figure, O is the centre of the circle and AE is a diameter. If $AB = BC$ and $\angle BFC = 25^\circ$, find the value of $\angle ABC$.



- 130°
- 120°
- 115°
- 105°

Ans : (A)

Right Answer Explanation



Angles subtended by equal chords are equal.

$$\angle AFB = 25^\circ = \angle BFC$$

In the cyclic quadrilateral ABCF,

$$\angle AFC = 25^\circ + 25^\circ = 50^\circ$$

$$\angle ABC = 180^\circ - 50^\circ = 130^\circ \text{ (because the sum of opposite angles of a cyclic quadrilateral is } 180^\circ)$$

Simplification

01

What will come in the place of the question mark '?' in the following question?

$$125 \times 24 + 60\% \text{ of } 660 = 4 \times ?$$

759

829

849

750

730

ANS - (C)



Follow BODMAS rule to solve this question, as per the order given below.

Step - 1: Parts of an equation enclosed in 'Brackets' must be solved first, and following BODMAS rule in the bracket -

Step - 2: Any mathematical 'Of' or 'Exponent' must be solved next.

Step - 3: Next, the parts of the equation that contain 'Division' and 'Multiplication' are calculated.

Step - 4: Last but not the least, the parts of the equation that contain 'Addition' and 'Subtraction' should be calculated.

Given expression is

$$125 \times 24 + 60\% \text{ of } 660 = 4 \times ?$$

$$\Rightarrow (1000/8) \times 24 + 396 = 4 \times ?$$

$$\Rightarrow 3000 + 396 = 4 \times ?$$

$$\Rightarrow ? = 3396/4$$

$$\therefore ? = 849$$



What will come in the place of the question mark '?' in the following question?

$$63 + (200\% \text{ of } 57 \div 3 - 37) = ?^3$$

3

4

3.5

4.5

4.25

ANS - (B)



Follow BODMAS rule to solve this question, as per the order given below.

Step - 1: Parts of an equation enclosed in 'Brackets' must be solved first, and following BODMAS rule in the bracket -

Step - 2: Any mathematical 'Of' or 'Exponent' must be solved next.

Step - 3: Next, the parts of the equation that contain 'Division' and 'Multiplication' are calculated.

Step - 4: Last but not the least, the parts of the equation that contain 'Addition' and 'Subtraction' should be calculated.

Given expression is

$$63 + (200\% \text{ of } 57 \div 3 - 37) = ?^3$$

$$\Rightarrow 63 + (114 \div 3 - 37) = ?^3$$

$$\Rightarrow 63 + (38 - 37) = ?^3$$

$$\Rightarrow ?^3 = 64$$

$$\therefore ? = 4$$



What will come in the place of the question mark '?' in the following question?

$$165\% \times 24 \div 3 + 35\% \text{ of } 1200 = ?$$

- 459.40
- 440
- 469.40
- 449.40
- 433.20

ANS - (E)



Follow BODMAS rule to solve this question, as per the order given below.

Step - 1: Parts of an equation enclosed in 'Brackets' must be solved first, and following BODMAS rule in the bracket -

Step - 2: Any mathematical 'Of' or 'Exponent' must be solved next.

Step - 3: Next, the parts of the equation that contain 'Division' and 'Multiplication' are calculated.

Step - 4: Last but not the least, the parts of the equation that contain 'Addition' and 'Subtraction' should be calculated.

Given expression is

$$165\% \times 24 \div 3 + 35\% \text{ of } 1200 = ?$$

$$\Rightarrow (100\% + 65\%) \text{ of } 24/3 + 420 = ?$$

$$\Rightarrow (100\% + 65\%) \text{ of } 8 + 420 = ?$$

$$\Rightarrow 8 + 5.2 + 420 = ?$$

$$\therefore ? = 433.2$$



What will come in the place of the question mark '?' in the following question?

$$64^3 \div 16 \div 8 - 36 \times 25 = 4 \times ?$$

307

317

270

287

300

ANS - (D)



Given:

$$64^3 \div 16 \div 8 - 36 \times 25 = 4 \times ?$$

Calculation:

$$64^3 \div 16 \div 8 - 36 \times 25 = 4 \times ?$$

$$\Rightarrow (2^6)^3 \times \frac{1}{16} \times \frac{1}{8} - 36 \times 25 = 4 \times ?$$

$$\Rightarrow 2^{18} \times \frac{1}{2^4} \times \frac{1}{2^3} - 36 \times 25 = 4 \times ?$$

$$\Rightarrow 2^{11} - 900 = 4 \times ?$$

$$\Rightarrow 2048 - 900 = 4 \times ?$$

$$\Rightarrow 4 \times ? = 2048 - 900$$

$$\Rightarrow ? = 1148/4 = 287$$

∴ The correct answer is 287.

What will come in the place of the question mark '?' in the following question?

$$72.5 \times 4 - 300\% \text{ of } \sqrt{6241} = \sqrt{?}$$

2704

2809

3969

3844

3973



ANS - (B)

Step - 1: Parts of an equation enclosed in 'Brackets' must be solved first, and following BODMAS rule in the bracket -

Step - 2: Any mathematical 'Of' or 'Exponent' must be solved next.

Step - 3: Next, the parts of the equation that contain 'Division' and 'Multiplication' are calculated.

Step - 4: Last but not the least, the parts of the equation that contain 'Addition' and 'Subtraction' should be calculated.

Given expression is

$$72.5 \text{ of } 4 - 300\% \text{ of } \sqrt{6241} = \sqrt{?}$$

$$\Rightarrow 290 - 3 \times 79 = \sqrt{?}$$

$$\Rightarrow 290 - 237 = \sqrt{?}$$

$$\Rightarrow \sqrt{?} = 53$$

$$\Rightarrow ? = 53^2$$

$$\therefore ? = 2809$$

What will come in the place of the question mark '?' in the following question?

$$66.66\% \text{ of } 522 + 15\% \text{ of } 400 = ?$$

- 402
- 404
- 406
- 408
- 410

ANS - D

GIVEN:

$$66.66\% \text{ of } 522 + 15\% \text{ of } 400 = ?$$

FORMULA USED:

These types of questions, the knowledge of conversion from percentage to fraction should be known.

Fraction	2/3	11/20	3/20	1/9
Percentage (%)	66.66	55	15	11.11

Concept :

Follow BODMAS rule to solve this question, as per the order given below.

Step - 1: Parts of an equation enclosed in 'Brackets' must be solved first, and following BODMAS rule in the bracket -

Step - 2: Any mathematical 'Of' or 'Exponent' must be solved next.

Step - 3: Next, the parts of the equation that contain 'Division' and 'Multiplication' are calculated.

Step - 4: Last but not the least, the parts of the equation that contain 'Addition' and 'Subtraction' should be calculated.

CALCULATION:

$$66.66\% \text{ of } 522 = (2/3) \times 522 = 348$$

$$15\% \text{ of } 400 = (3/20) \times 400 = 60$$

Given expression is

$$66.66\% \text{ of } 522 + 15\% \text{ of } 400 = ?$$

$$\Rightarrow 348 + 60 = ?$$

$$\Rightarrow 408 = ?$$

$$\therefore ? = 408$$



What will come in the place of the question mark '?' in the following question?

$$9.09\% \text{ of } 1331 + 7.69\% \text{ of } 169 = ?$$

120

134

150

144

124

ANS - (B)

GIVEN:

$$9.09\% \text{ of } 1331 + 7.69\% \text{ of } 169 = ?$$

FORMULA USED:

These types of questions, the knowledge of conversion from percentage to fraction should be known.

Fraction	1/11	1/12	1/13	1/14
Percentage (%)	9.09	8.33	7.69	7.14

Concept :

Follow BODMAS rule to solve this question, as per the order given below.

Step - 1: Parts of an equation enclosed in 'Brackets' must be solved first, and following BODMAS rule in the bracket -

Step - 2: Any mathematical 'Of' or 'Exponent' must be solved next.

Step - 3: Next, the parts of the equation that contain 'Division' and 'Multiplication' are calculated.

Step - 4: Last but not the least, the parts of the equation that contain 'Addition' and 'Subtraction' should be calculated.

CALCULATION:

$$9.09\% \text{ of } 1331 = (1/11) \times 1331 = 121$$

$$7.69\% \text{ of } 169 = (1/13) \times 169 = 13$$

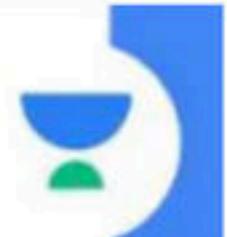
Given expression is

$$9.09\% \text{ of } 1331 + 7.69\% \text{ of } 169 = ?$$

$$\Rightarrow 121 + 13 = ?$$

$$\Rightarrow 134 = ?$$

$$\therefore ? = 134$$





What will come in the place of the question mark '?' in the following question?

$$14.28\% \text{ of } 2401 + 42.84\% \text{ of } 7 = ?$$

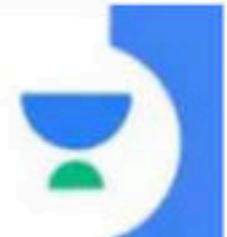
350

343

346

360

377



ANS - C

GIVEN:

$$14.28\% \text{ of } 2401 + 42.84\% \text{ of } 7 = ?$$

FORMULA USED:

These types of questions, the knowledge of conversion from percentage to fraction should be known.

Fraction	1/7	2/7	3/7	4/7	5/7
Percentage (%)	14.28	28.57	42.84	57.14	71.43

Concept :

Follow BODMAS rule to solve this question, as per the order given below.

Step - 1: Parts of an equation enclosed in 'Brackets' must be solved first, and following BODMAS rule in the bracket -

Step - 2: Any mathematical 'Of' or 'Exponent' must be solved next.

Step - 3: Next, the parts of the equation that contain 'Division' and 'Multiplication' are calculated.

Step - 4: Last but not the least, the parts of the equation that contain 'Addition' and 'Subtraction' should be calculated.

CALCULATION:

$$14.28\% \text{ of } 2401 = (1/7) \times 2401 = 343$$

$$42.84\% \text{ of } 7 = (3/7) \times 7 = 3$$

Given expression is

$$14.28\% \text{ of } 2401 + 42.84\% \text{ of } 7 = ?$$

$$\Rightarrow 343 + 3 = ?$$

$$\Rightarrow 346 = ?$$

$$\therefore ? = 346$$

What will come in the place of the question mark '?' in the following question?

$$62.5\% \text{ of } 512 + 16.67\% \text{ of } 1296 = ?$$

536

336

436

236

636



GIVEN:

ANS - (A)

$$62.5\% \text{ of } 512 + 16.67\% \text{ of } 1296 = ?$$

FORMULA USED:

These types of questions, the knowledge of conversion from percentage to fraction should be known.

Fraction	5/8	1/3	1/6	1/8
Percentage (%)	62.5	33.33	16.67	12.5

Concept :

Follow BODMAS rule to solve this question, as per the order given below.

Step - 1: Parts of an equation enclosed in 'Brackets' must be solved first, and following BODMAS rule in the bracket -

Step - 2: Any mathematical 'Of' or 'Exponent' must be solved next.

Step - 3: Next, the parts of the equation that contain 'Division' and 'Multiplication' are calculated.

Step - 4: Last but not the least, the parts of the equation that contain 'Addition' and 'Subtraction' should be calculated.

CALCULATION:

$$62.5\% \text{ of } 512 = (5/8) \times 512 = 320$$

$$16.67\% \text{ of } 1296 = (1/6) \times 1296 = 216$$

Given expression is

$$62.5\% \text{ of } 512 + 16.67\% \text{ of } 1296 = ?$$

$$\Rightarrow 320 + 216 = ?$$

$$\Rightarrow 536 = ?$$

$$\therefore ? = 536$$

What will come in the place of the question mark '?' in the following question?

$$6.66\% \text{ of } 3375 + 5.55\% \text{ of } 5832 = ?$$

609

540

450

459

549



GIVEN:

$$6.66\% \text{ of } 3375 + 5.55\% \text{ of } 5832 = ?$$

ANS - (E)

FORMULA USED:

These types of questions, the knowledge of conversion from percentage to fraction should be known.

Fraction	3/8	5/6	1/15	1/18	1/17	1/16
Percentage (%)	37.5	83.33	6.67	5.55	5.88	6.25

Concept :

Follow BODMAS rule to solve this question, as per the order given below.

Step - 1: Parts of an equation enclosed in 'Brackets' must be solved first, and following BODMAS rule in the bracket -

Step - 2: Any mathematical 'Of' or 'Exponent' must be solved next.

Step - 3: Next, the parts of the equation that contain 'Division' and 'Multiplication' are calculated.

Step - 4: Last but not the least, the parts of the equation that contain 'Addition' and 'Subtraction' should be calculated.

CALCULATION:

$$6.66\% \text{ of } 3375 = (1/15) \times 3375 = 1 \times 225 = 225$$

$$5.55\% \text{ of } 5832 = (1/18) \times 5832 = 1 \times 324 = 324$$

Given expression is

$$6.66\% \text{ of } 3375 + 5.55\% \text{ of } 5832 = ?$$

$$\Rightarrow 225 + 324 = ?$$

$$\Rightarrow 549 = ?$$

$$\therefore ? = 549$$

Simplification





What will come in the place of the question mark '?' in the following question?

$$(77 \times 7) - (55 \times 5) = (22 \times 2) + (10 \times ?)$$

11

30

22

20

10



ANS - (C)

Follow BODMAS rule to solve this question, as per the order given below.

Step - 1: Parts of an equation enclosed in 'Brackets' must be solved first, and following BODMAS rule in the bracket -

Step - 2: Any mathematical 'Of' or 'Exponent' must be solved next.

Step - 3: Next, the parts of the equation that contain 'Division' and 'Multiplication' are calculated.

Step - 4: Last but not the least, the parts of the equation that contain 'Addition' and 'Subtraction' should be calculated.

Given expression is

$$(77 \times 7) - (55 \times 5) = (22 \times 2) + (10 \times ?)$$

$$\Rightarrow (77 \times 7) - (55 \times 5) - (22 \times 2) = (10 \times ?)$$

$$\Rightarrow 11 \times [(7 \times 7) - (5 \times 5) - (2 \times 2)] = (10 \times ?)$$

$$\Rightarrow 11 \times [(49) - (25) - (4)] = (10 \times ?)$$

$$\Rightarrow 11 \times [20] = (10 \times ?)$$

$$\Rightarrow ? = 22$$

$$\therefore ? = 22$$

What will come in place of question mark (?) in the following equation?

$$25\% \text{ of } 600 + 40\% \text{ of } 400 = ? - 15\% \text{ of } 200$$

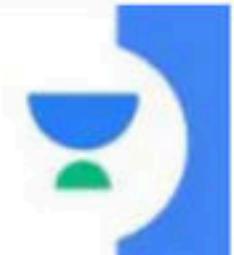
320

330

310

340

360



ANS - (D)

Follow BODMAS rule to solve this question, as per the order given below,

Step-1: Parts of an equation enclosed in 'Brackets' must be solved first, and in the bracket,

Step-2: Any mathematical 'Of' or 'Exponent' must be solved next,

Step-3: Next, the parts of the equation that contain 'Division' and 'Multiplication' are calculated,

Step-4: Last but not least, the parts of the equation that contain 'Addition' and 'Subtraction' should be calculated

$$25\% \text{ of } 600 + 40\% \text{ of } 400 = ? - 15\% \text{ of } 200$$

$$\Rightarrow 150 + 160 = ? - 30$$

$$\Rightarrow 310 = ? - 30$$

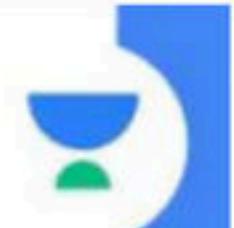
$$\Rightarrow 310 + 30 = ?$$

$$\therefore ? = 340$$

What will come in place of question mark (?) in the following equation?

$$12.5\% \text{ of } 100 + 1/4 \times 1728 - 4.5 = ?$$

- 620
- 560
- 480
- 520
- 440



ANS - (E)

Follow BODMAS rule to solve this question, as per the order given below,

Step-1: Parts of an equation enclosed in 'Brackets' must be solved first, and in the bracket,

Step-2: Any mathematical 'Of' or 'Exponent' must be solved next,

Step-3: Next, the parts of the equation that contain 'Division' and 'Multiplication' are calculated,

Step-4: Last but not least, the parts of the equation that contain 'Addition' and 'Subtraction' should be calculated

$$12.5\% \text{ of } 100 + \frac{1}{4} \times 1728 - 4.5 = ?$$

$$\Rightarrow \frac{25}{2} + 432 - 4.5$$

$$\Rightarrow (25 + 864)/2 - 4.5$$

$$\Rightarrow 444.5 - 4.5$$

$$\Rightarrow 440$$

What will come in the place of the question mark '?' in the following question?

$$(20\% \text{ of } 65 \times 26\% \text{ of } 50) = ? + 23$$

150

192

146

155

165

ANS - (C)



Follow BODMAS rule to solve this question, as per the order given below,

Step-1: Parts of an equation enclosed in 'Brackets' must be solved first, and in the bracket,

Step-2: Any mathematical 'Of' or 'Exponent' must be solved next,

Step-3: Next, the parts of the equation that contain 'Division' and 'Multiplication' are calculated,

Step-4: Last but not least, the parts of the equation that contain 'Addition' and 'Subtraction' should be calculated

$$(20\% \text{ of } 65 \times 26\% \text{ of } 50) = ? + 23$$

$$\Rightarrow (13 \times 13) = ? + 23$$

$$\Rightarrow (169) = ? + 23$$

$$\Rightarrow 169 - 23 = ?$$

$$\therefore ? = 146$$

What will come in place of question mark (?) in the following equation?

$$20\% \text{ of } 500 \div ? + [40\% \text{ of } 400] = 164$$

- 5
- 125
- 50
- 75
- 25



ANS - (E)

Follow BODMAS rule to solve this question, as per the order given below,

Step-1: Parts of an equation enclosed in 'Brackets' must be solved first, and in the bracket,

Step-2: Any mathematical 'Of' or 'Exponent' must be solved next,

Step-3: Next, the parts of the equation that contain 'Division' and 'Multiplication' are calculated,

Step-4: Last but not least, the parts of the equation that contain 'Addition' and 'Subtraction' should be calculated

$$20\% \text{ of } 500 \div ? + [40\% \text{ of } 400] = 164$$

$$\Rightarrow 20/100 \times 500 \div ? + [40/100 \times 400] = 164$$

$$\Rightarrow 100 \div ? + [160] = 164$$

$$\Rightarrow 100 \div ? = 4$$

$$\therefore ? = 25$$

What will come in place of question mark '?' in the following question?

$$87.14 + 11.1 + 1.94 = 191.15 - ?$$

100

98.0

90.97

92

91.90

ANS - C



Follow BODMAS rule to solve this question, as per the order given below,

Step-1: Parts of an equation enclosed in 'Brackets' must be solved first, and in the bracket,

Step-2: Any mathematical 'Of' or 'Exponent' must be solved next,

Step-3: Next, the parts of the equation that contain 'Division' and 'Multiplication' are calculated,

Step-4: Last but not least, the parts of the equation that contain 'Addition' and 'Subtraction' should be calculated.

Given expression is,

$$\Rightarrow 87.14 + 11.1 + 1.94 = 191.15 - ?$$

$$\Rightarrow 100.18 = 191.15 - ?$$

$$\Rightarrow ? = 191.15 - 100.18$$

$$\Rightarrow ? = 90.97$$

What should come in place of question mark '?' in the following expression?

$$(6214 + 3689 + 1476) - (5213 + 1365 + 2038) = ?$$

3376

3372

2763

4266

3972

ANS - (A)

$$(6214 + 3689 + 1476) - (5213 + 1365 + 2038) = ?$$

Taking the terms of the first bracket

$$\Rightarrow 6214 + 3689 + 1476 = 11379$$

Taking the terms of second bracket

$$\Rightarrow 5213 + 1365 + 2038 = 8616$$

$$\therefore 11379 - 8616 = 2763$$





What should come in place of the question mark '?' in the following question?

$$38865 + 12473 + 21045 - 46099 = ?$$

114485

28081

26284

114845

26288

ANS - C

Given equation is

$$38865 + 12473 + 21045 - 46099 = ?$$

$$\Rightarrow 51338 + 21045 - 46099 = ?$$

$$\Rightarrow 72383 - 46099 = ?$$

$$\Rightarrow ? = 26284$$





What will come in the place of the question mark '?' in the following question?

$$48\% \text{ of } 275 + 55\% \text{ of } 480 = ? + 12 \times 8$$

- 150
- 300
- 450
- 600
- 200



ANS - (B)

Calculation:

$$48\% \text{ of } 275 + 55\% \text{ of } 480 = ? + 12 \times 8$$

$$\Rightarrow 132 + 264 = ? + 96$$

$$\Rightarrow 132 + 264 - 96 = ?$$

$$\Rightarrow 300 = ?$$

∴ The value of ? is 300

What will come in the place of the question mark '?' in the following question?

$$13\frac{1}{6} + 6\frac{5}{6} + ? = (13 - 6) \times 3 + 3$$

8

10

6

12

4

ANS - (E)

Given expression is

$$13\frac{1}{6} + 6\frac{5}{6} + ? = (13 - 6) \times 3 + 3$$

$$\Rightarrow \frac{79}{6} + \frac{41}{6} + ? = ((7) \times 3) + 3$$

$$\Rightarrow \frac{120}{6} + ? = 24$$

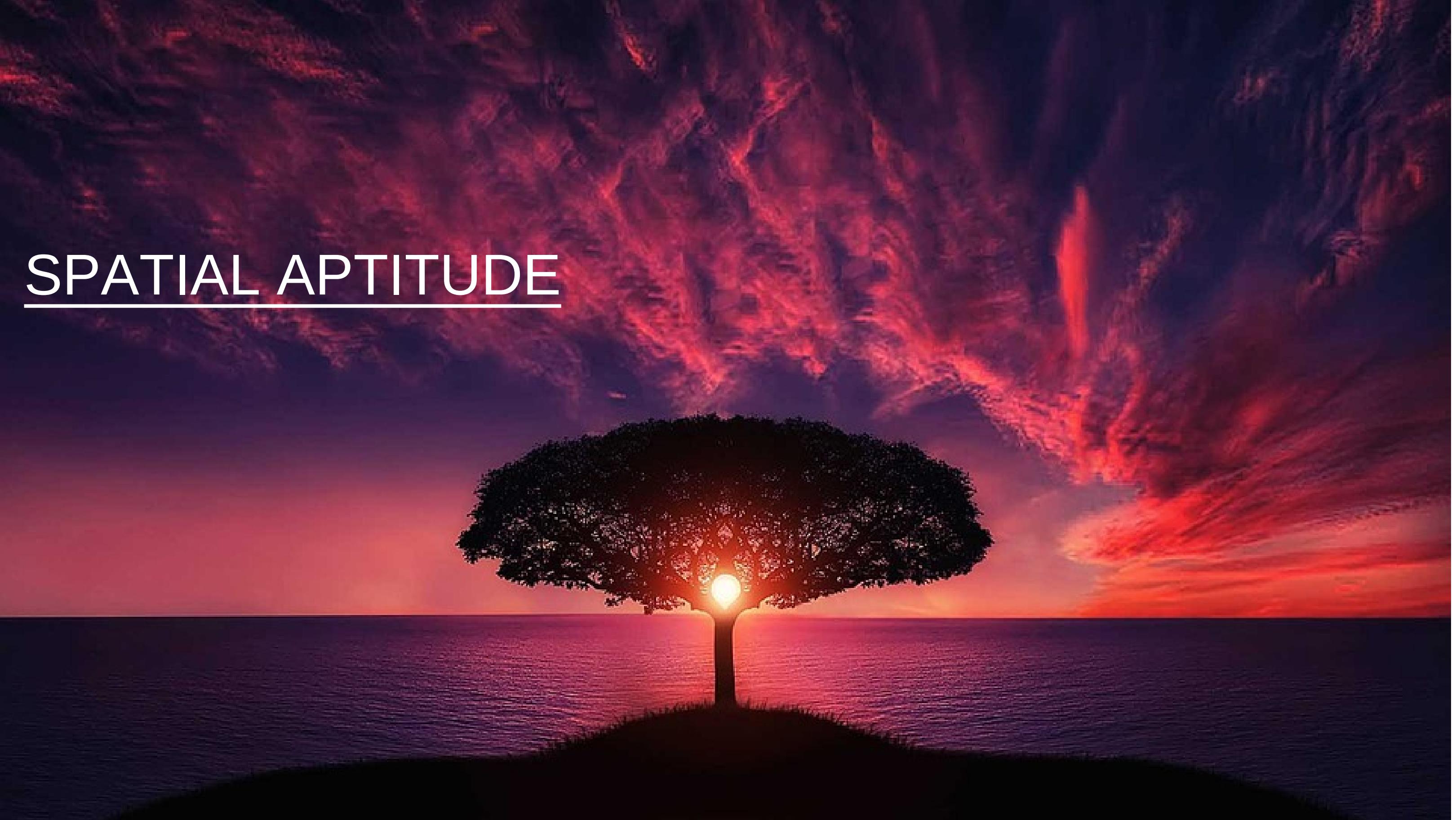
$$\Rightarrow 20 + ? = 24$$

$$\Rightarrow ? = 4$$

∴ The value of ? is 4



SPATIAL APTITUDE



Questions Fig

DL9Q3574

(a) **DL9Q3574**

(c) **DL9Q3574**

(b) **DL9Q3574**

(D) **DL9Q3574**

Ans.-01 (D) Questions Fig DL9Q3574

(a) **DL9Q3574**

(c) **DL9Q3574**

(b) **DL9Q3574**

(D) DL9Q3574

Questions Fig

SECRETARY

(a) **YRATERSEC**

(b) **YRATERSEC**

(c) **YRATERSEC**

(d) **YRATERSEC**

Ans.-02 (B) Questions Fig

SECRETARY

(a) **YRATERSEC**

(B) SECYRATER

(c) **YRATERSEC**

(d) **SECYRATER**



TRIANGLE

TRIANGLE

TRIANGLE

TRIANGLE

TRIANGLE

GATE 2021



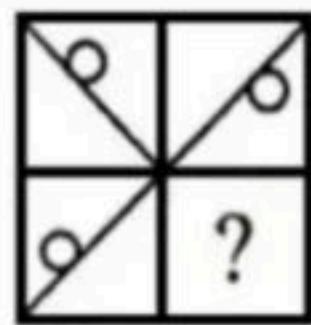
Solution:

TRIANGLE
~~~~~  
EQUILATERAL

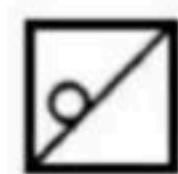
Answer (A)



**Directions:** In the following question, a part of the figure is missing. From the given options (a, b, c and d), find the right figure to fit in the missing figure.



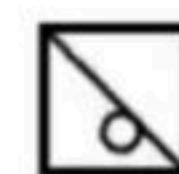
(X)



(a)



(b)



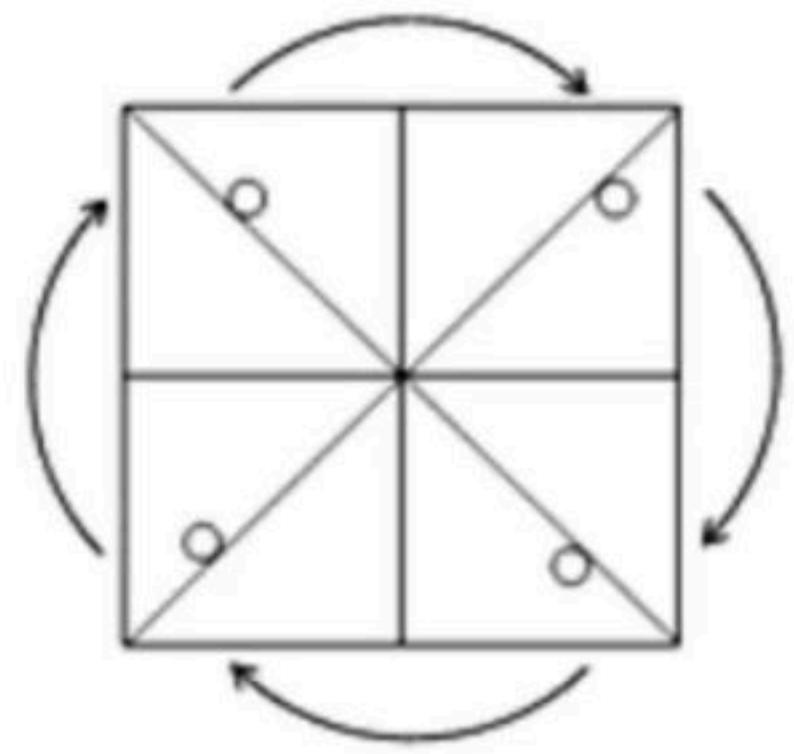
(c)



(d)

- (a)
- (b)
- (c)
- (d)

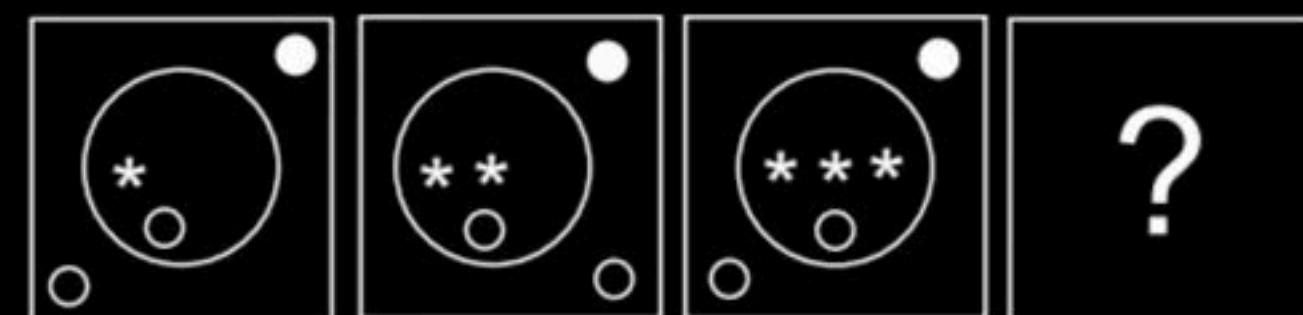
ANS.- (C)



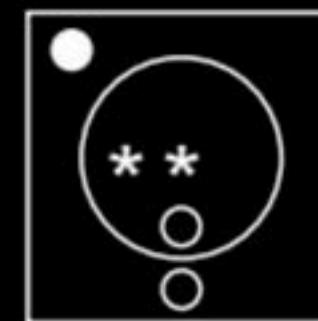
Correct option is (3).



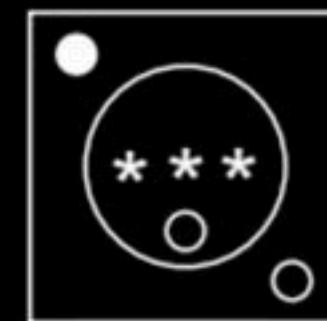
### Questions Figure :



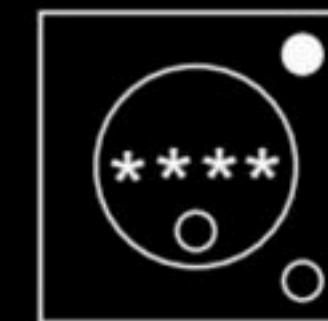
?



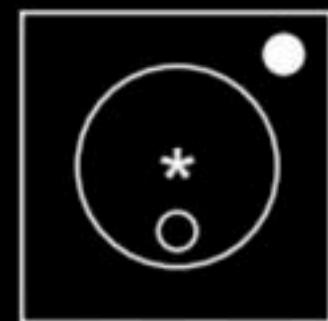
(a)



(b)

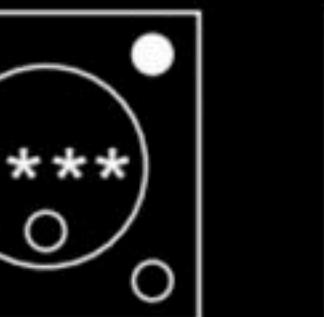
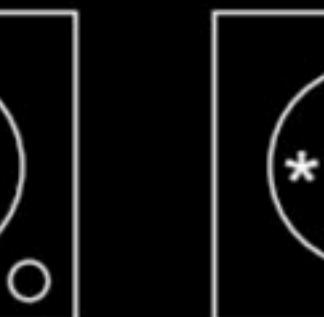
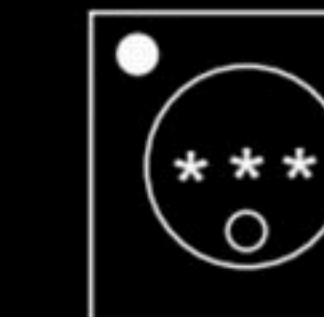
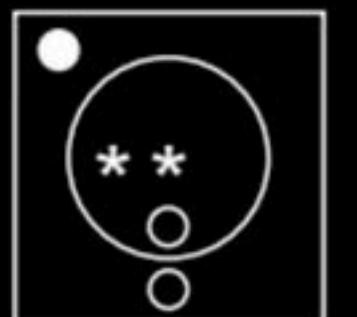
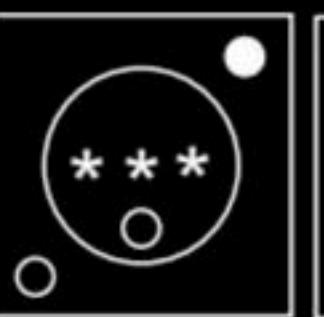
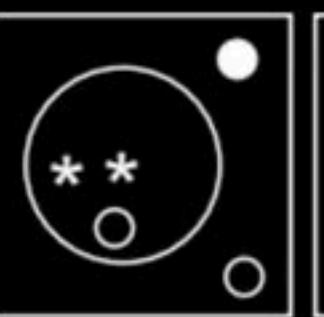
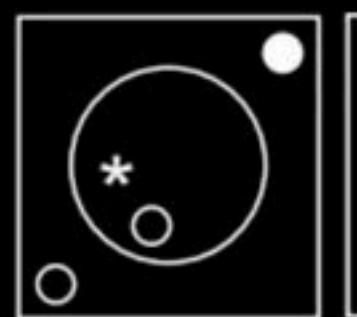


(c)



(d)

**Ans.-2(C) Questions Figure :**



(a)

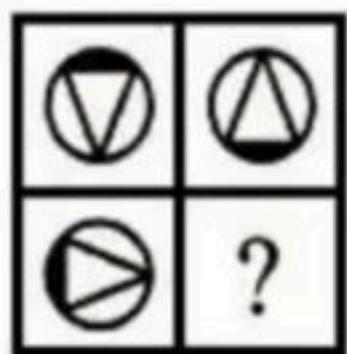
(b)

(c)

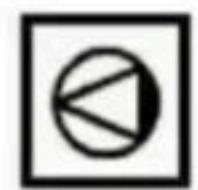
(d)



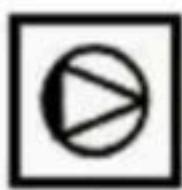
**Directions:** In the following question, a part of the figure is missing. From the given options (a, b, c and d), find the right figure to fit in the missing part of the figure.



(X)



(a)



(b)



(c)



(d)

(a)

(b)

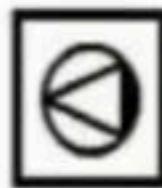
(c)

(d)



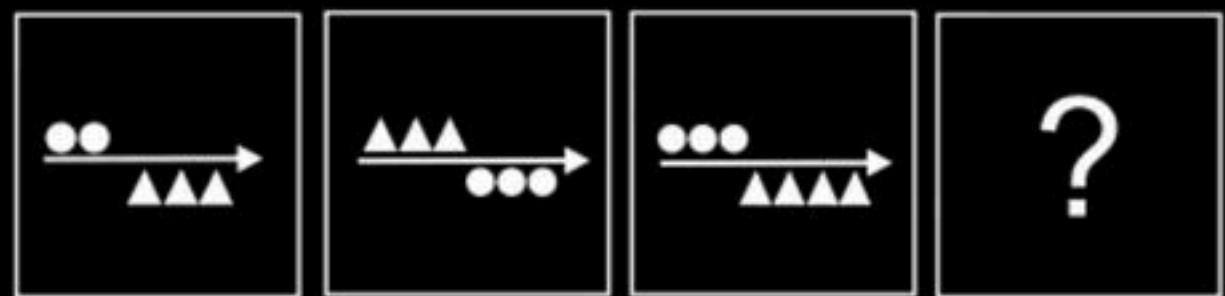
ANS.- (A)

It is clear from the observation that triangle in figures in right is opposite to that in left figures.

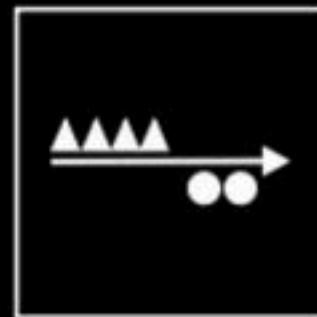


So, this is the answer

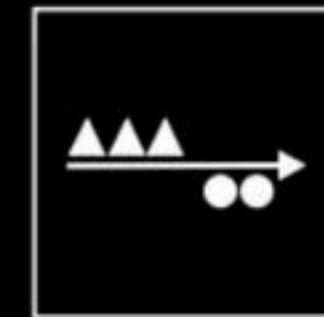
## Questions Figure :



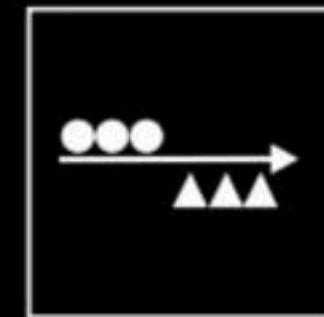
?



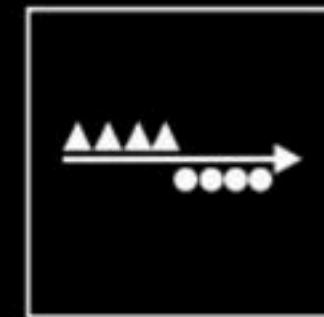
(a)



(b)

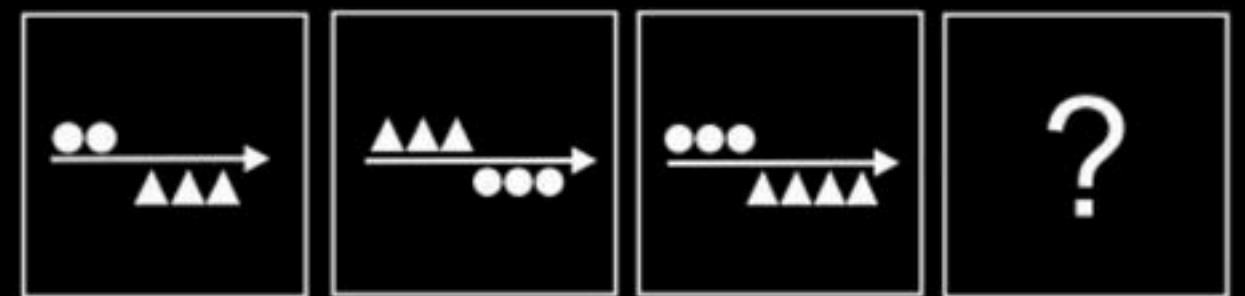


(c)



(D)

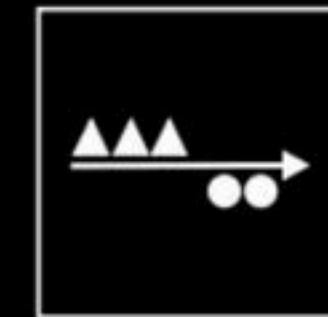
**Ans.-1(D) Questions Figure :**



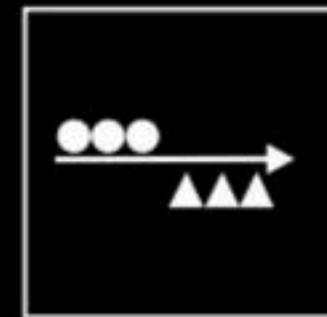
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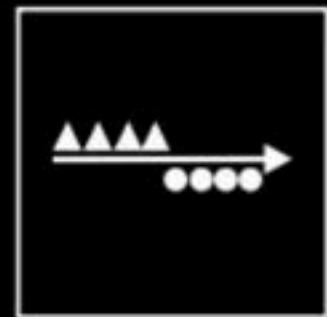
(a)



(b)

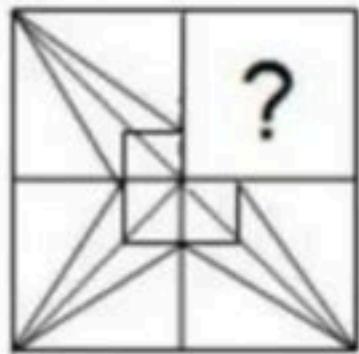


(c)

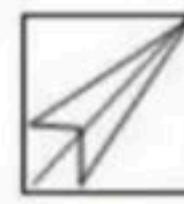


(D)

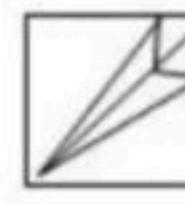
**Directions:** In the following question, a part of the figure is missing. From the given options (a, b, c and d), find the right figure to fit in the missing place.



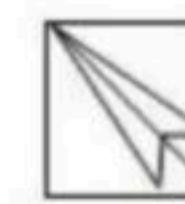
(a)



(b)



(c)



(d)

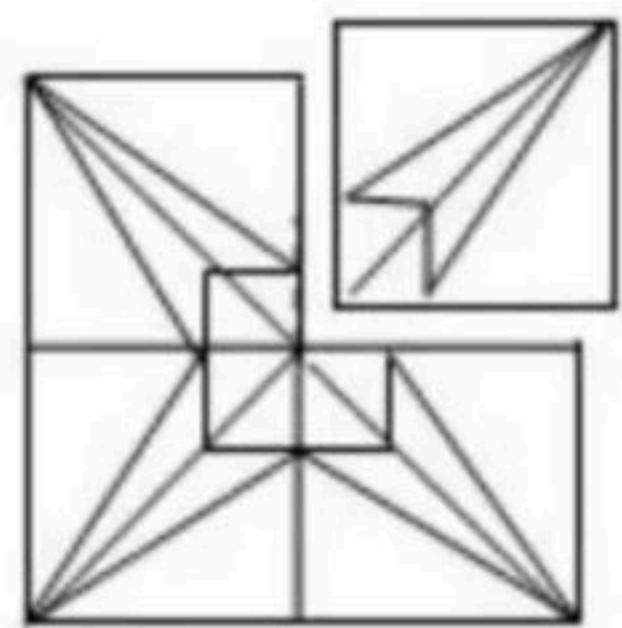
(a)

(b)

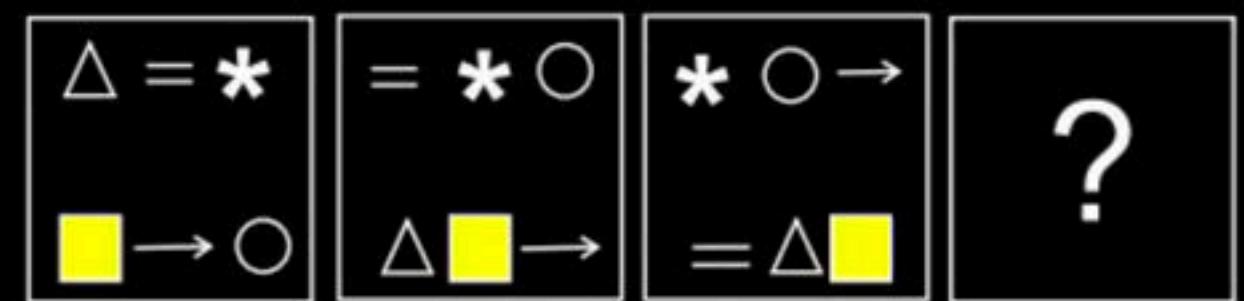
(c)

(d)

ANS.- (B)



## Questions Figure :



$$\begin{array}{c} = * \circ \\ \rightarrow \square \Delta \end{array}$$

$$\begin{array}{c} \circ \rightarrow \Delta \\ = * \square \end{array}$$

$$\begin{array}{c} \circ \rightarrow \square \\ * = \Delta \end{array}$$

$$\begin{array}{c} * \circ \square \\ = \Delta \rightarrow \end{array}$$

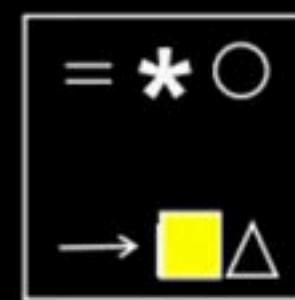
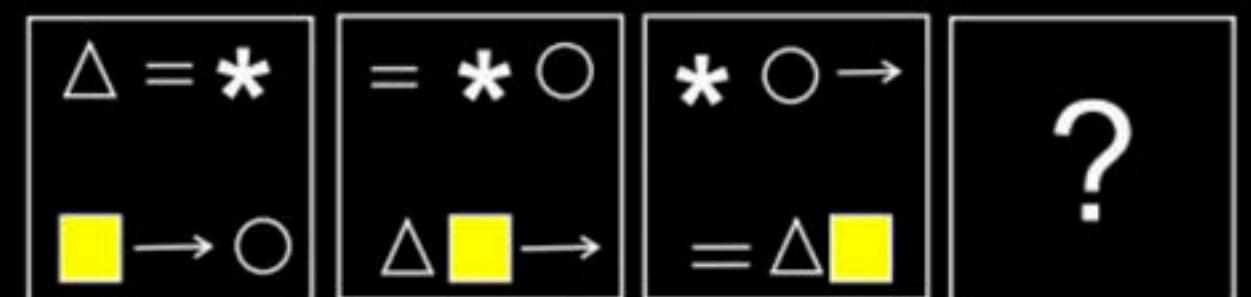
(a)

(b)

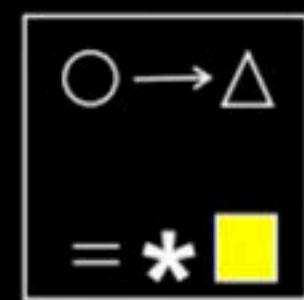
(C)

(d)

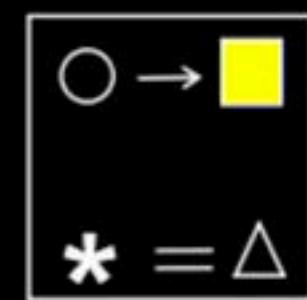
**Ans.-4(C) Questions Figure :**



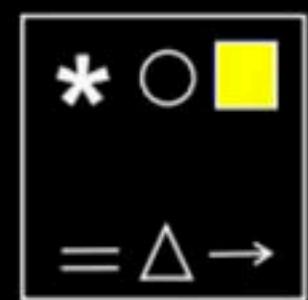
(a)



(b)

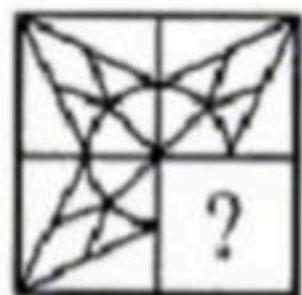


(c)



(d)

**Directions:** In the following question, a part of the figure is missing. From the given options (a, b, c and d), find the right figure to fit in the missing figure.



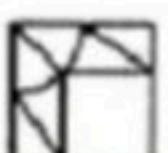
(x)



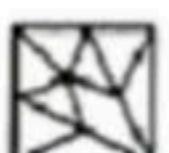
(a)



(b)



(c)



(d)

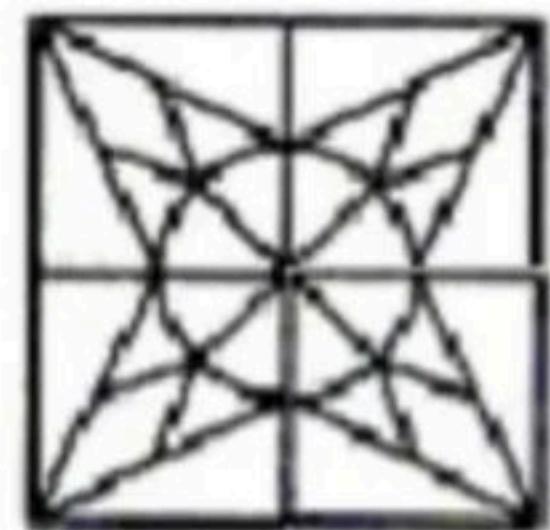
(a)

(b)

(c)

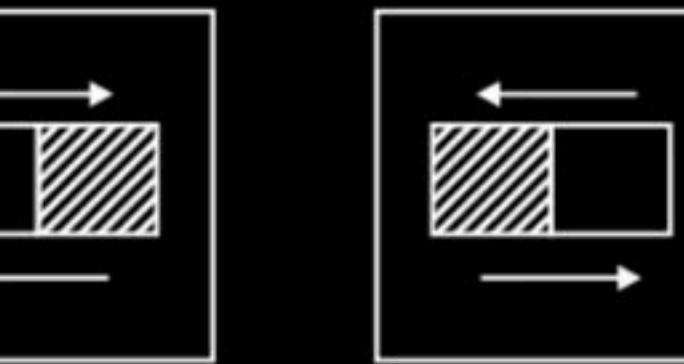
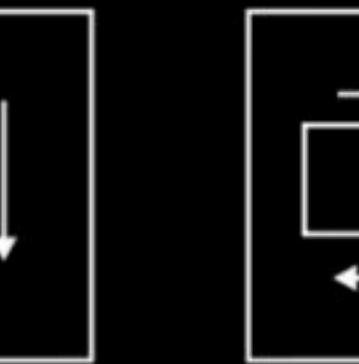
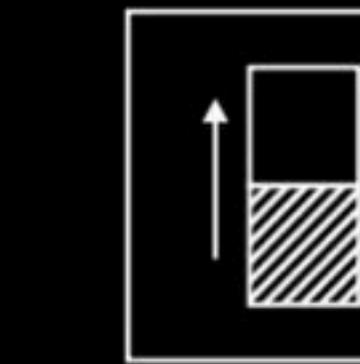
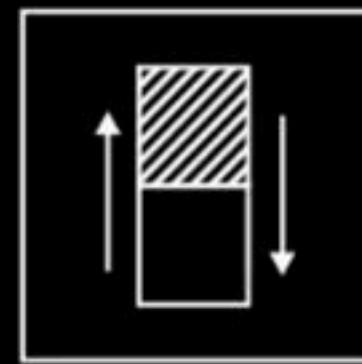
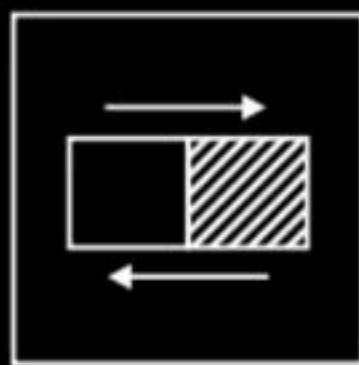
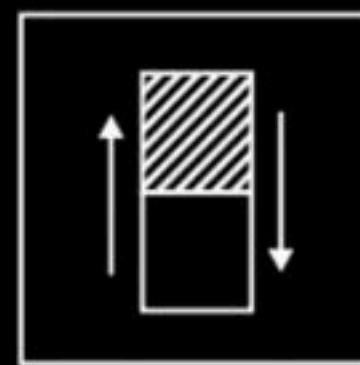
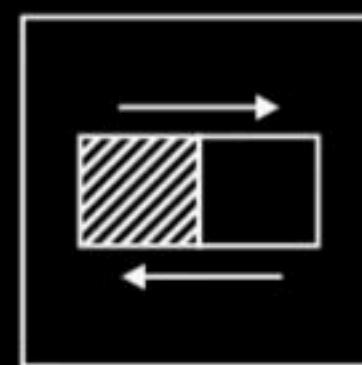
(d)

ANS.- (A)



Correct Answer: (a)

## Questions Figure :



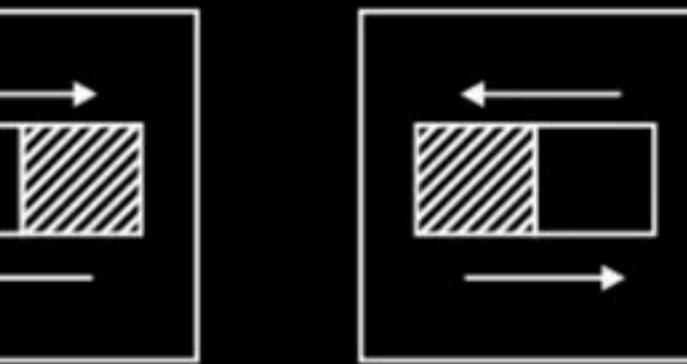
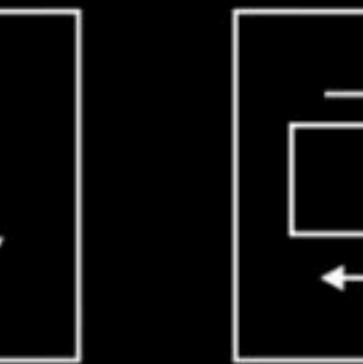
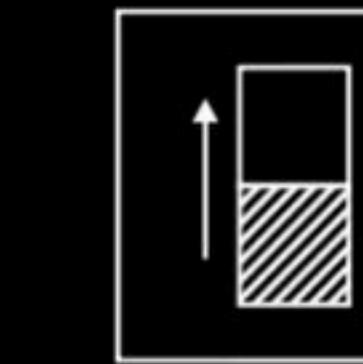
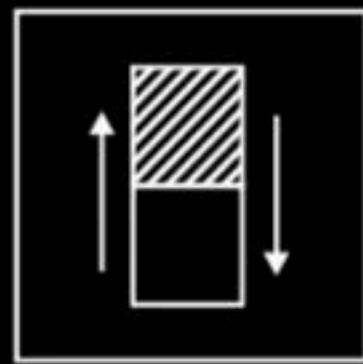
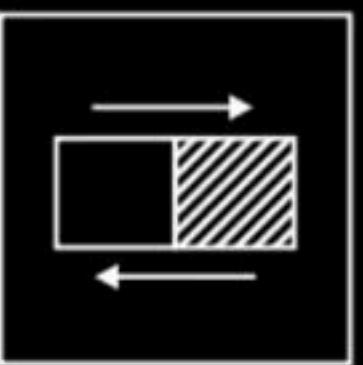
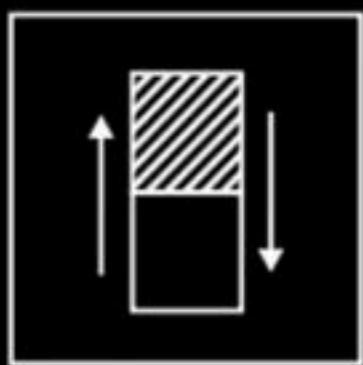
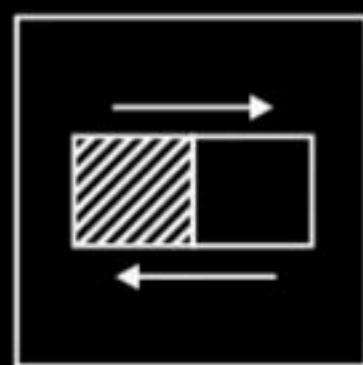
(a)

(B)

(c)

(d)

**Ans.-5(B) Questions Figure :**



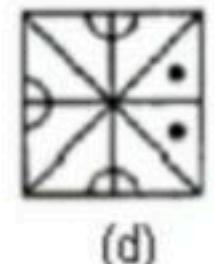
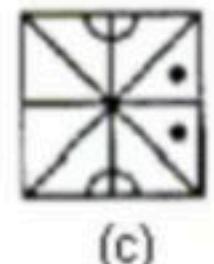
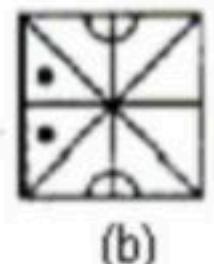
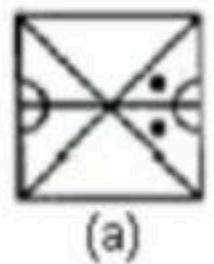
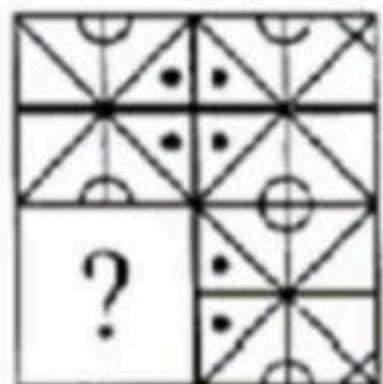
(a)

(B)

(c)

(d)

**Directions:** In the following question, a part of the figure is missing. Find out from the given options (a, b, c and d), the right figure which completes the figure (X).



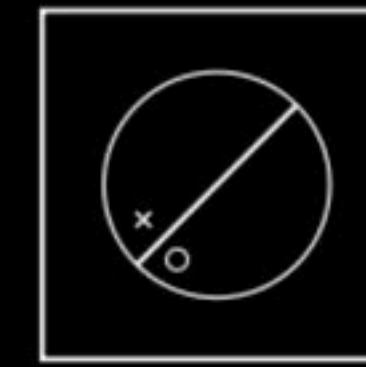
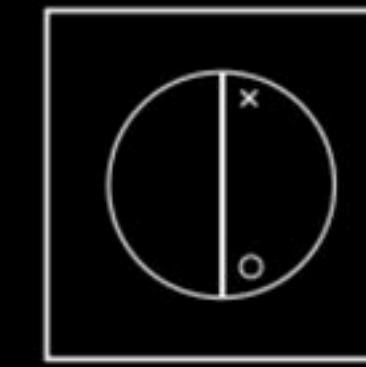
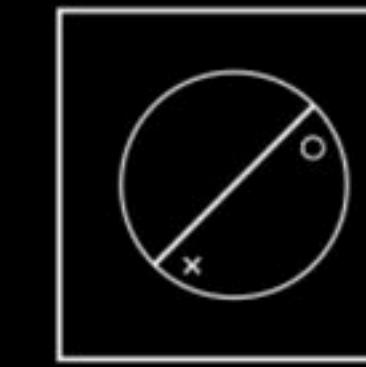
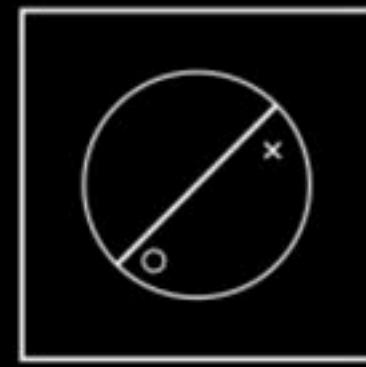
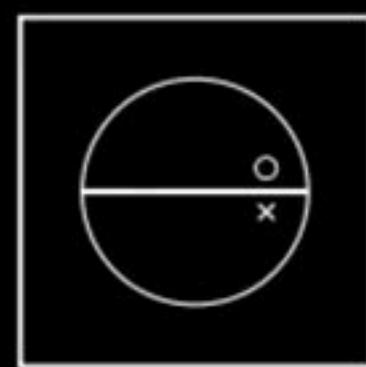
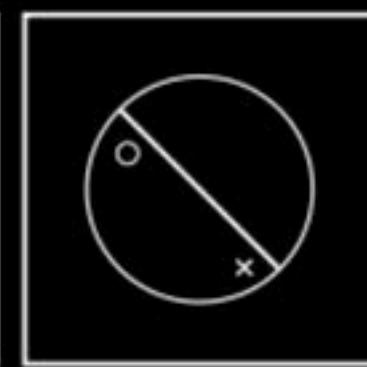
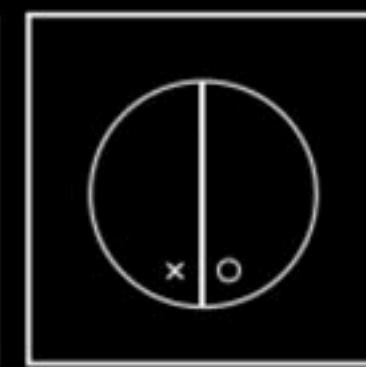
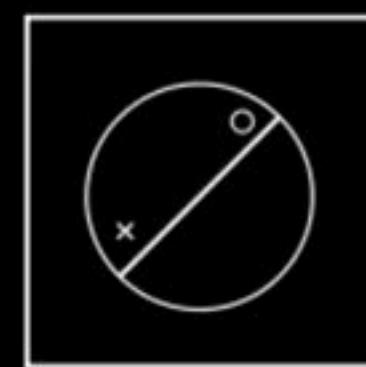
- (a)
- (b)
- (c)
- (d)

ANS.- (C)



Figure (c) completes the figure (X).

## Questions Figure :



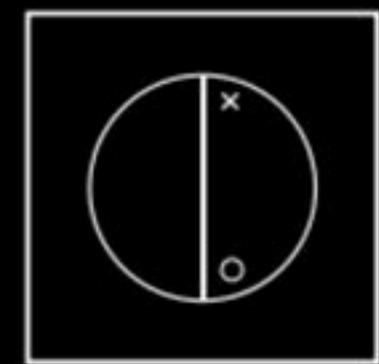
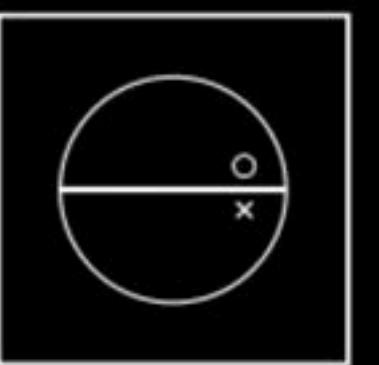
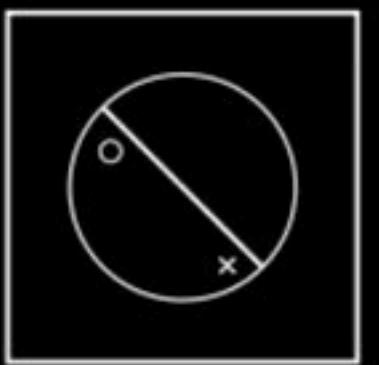
(A)

(b)

(c)

(d)

**Ans.-7 (A) Questions Figure :**



**(a)**

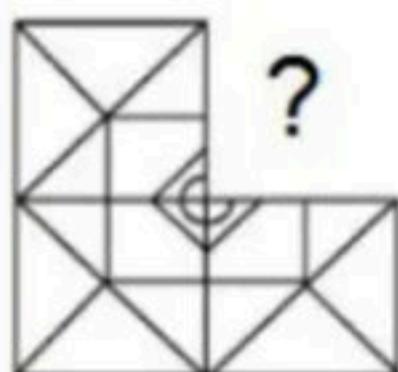
**(b)**

**(c)**

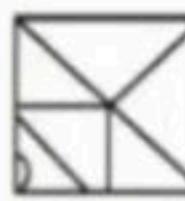
**(d)**



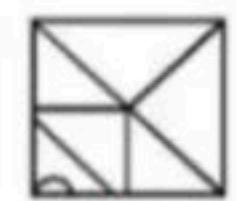
**Directions:** In the following question, a part of the figure is missing. Choose the correct alternative from the given options (a, b, c and d) to fit in the missing place.



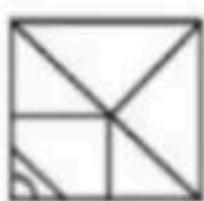
(X)



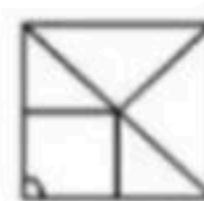
(a)



(b)



(c)



(d)

(a)

(b)

(c)

(d)

Sol. -(C)

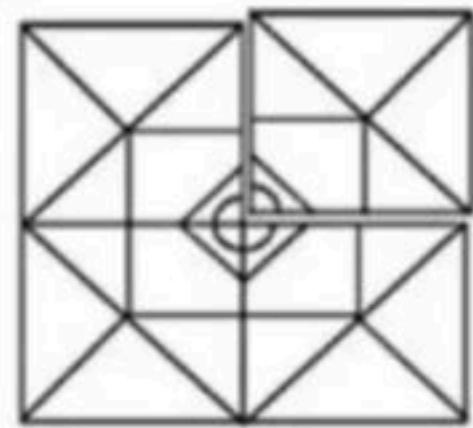
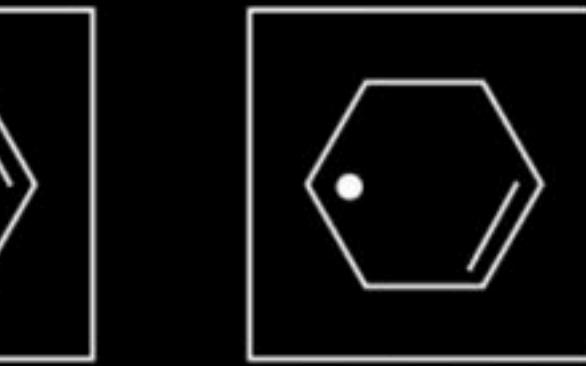
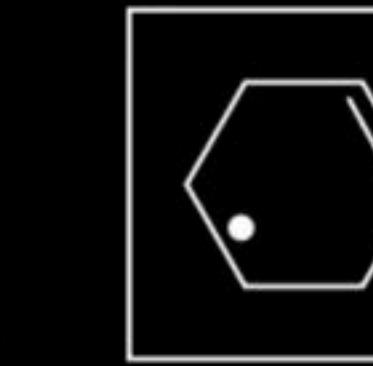
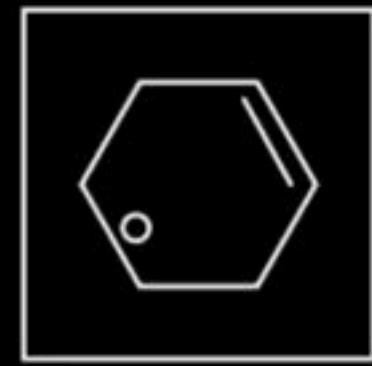
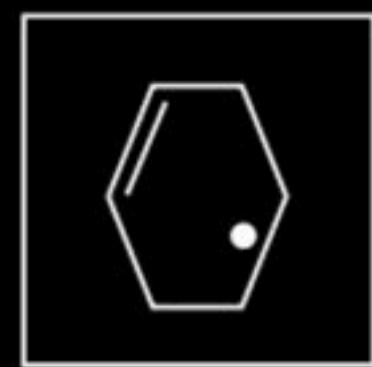


Figure (c) when placed in the slot showing the '?' completes the pattern.  
Hence, the option (3) is correct.

## Questions Figure :



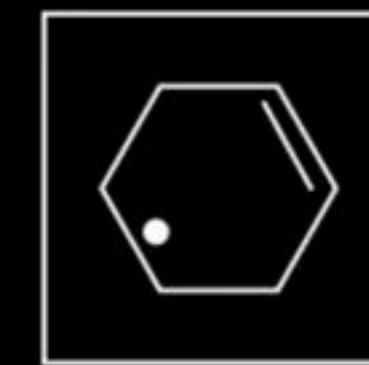
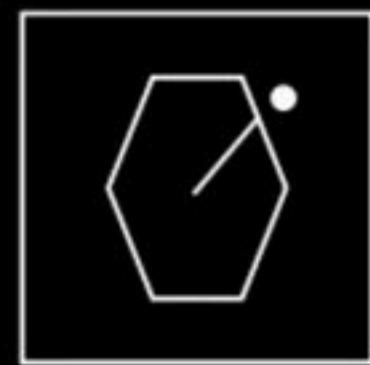
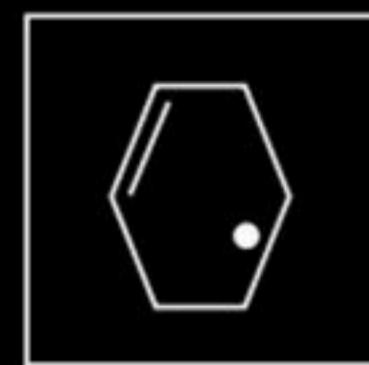
(a)

(b)

(c)

(d)

**Ans.-8 (B) Questions Figure :**



(a)

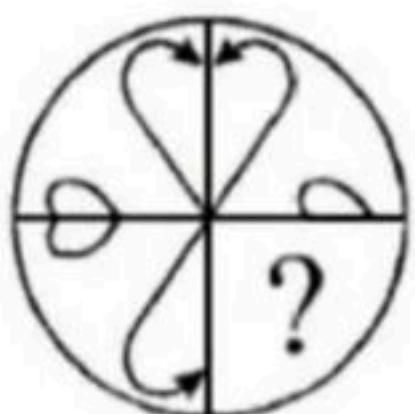
(b)

(c)

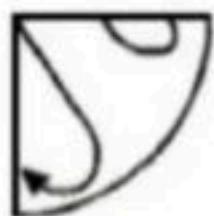
(d)



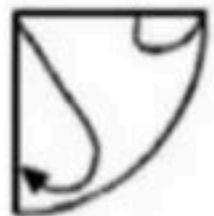
**Directions:** In the following question, a part of the figure is missing. Find out from the given options (a, b, c and d), the right figure which completes the figure (X).



(a)



(b)



(c)



(d)

(a)

(b)

(c)

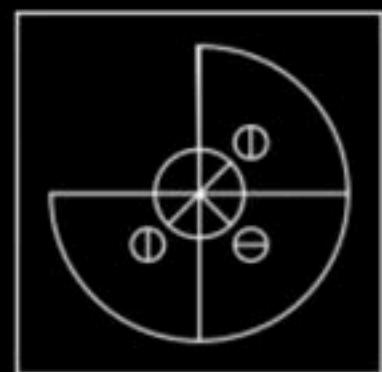
(d)

Sol. -(D)



Figure (d) completes the figure (X).

**Questions Figure :**



**Answer figure**



**(a)**



**(b)**

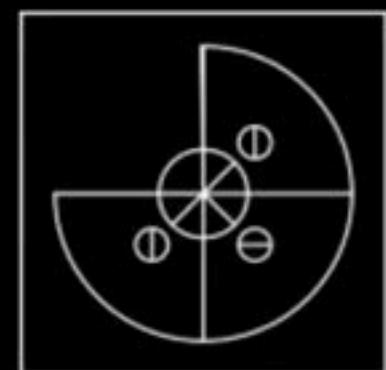


**(c)**



**(d)**

**Ans.-03 (A) Questions Figure :**



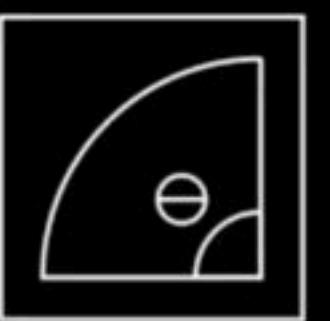
**Answer figure**



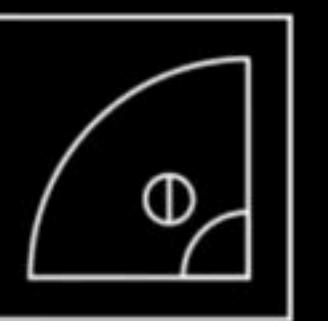
**(a)**



**(b)**



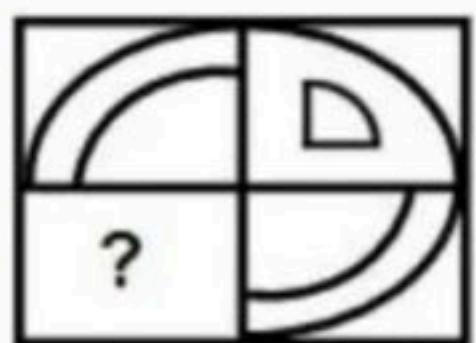
**(c)**



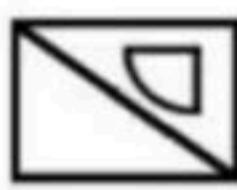
**(d)**



**Directions:** In the following question, a part of the figure is missing. Find out, from the given options (a, b, c and d), the right figure to replace the missing part.



(a)



(b)



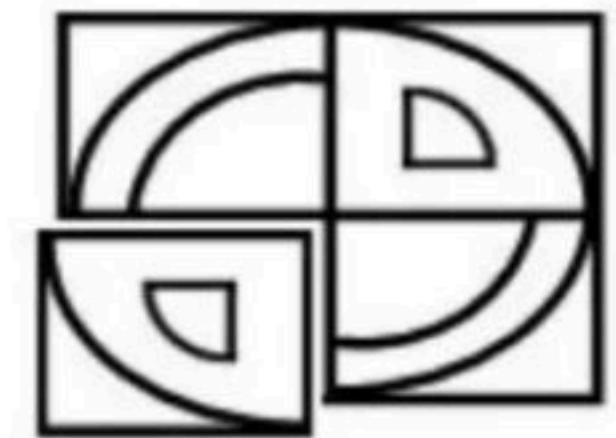
(c)



(d)

- (a)
- (b)
- (c)
- (d)

Sol. -(A)



**Questions Figure :**



**Answer figure**



**(a)**



**(b)**

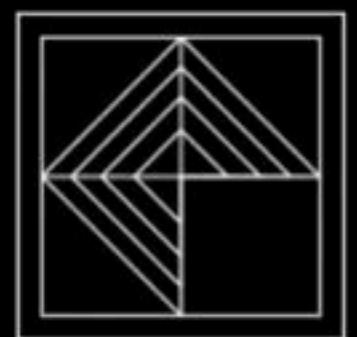


**(c)**



**(d)**

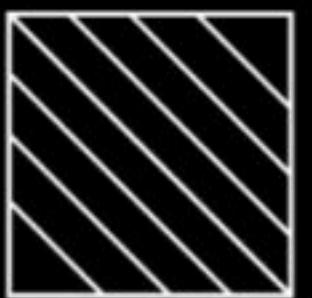
**Ans.-04 (C) Questions Figure :**



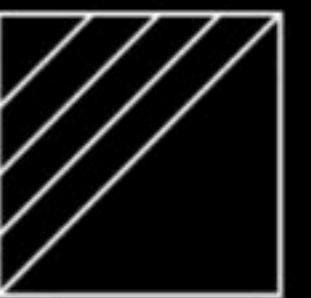
**Answer figure**



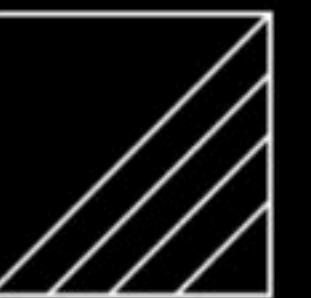
**(a)**



**(b)**



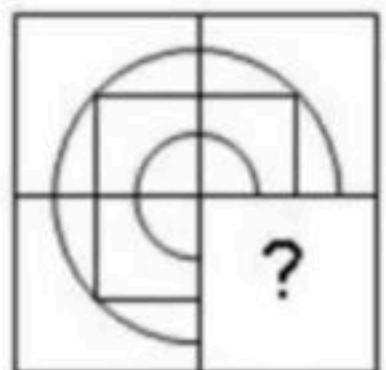
**(c)**



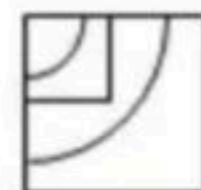
**(d)**



**Directions:** In the following question, a part of the figure is missing. Find out, from the given options (a, b, c and d), the right figure to replace the missing part.



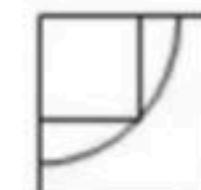
(a)



(b)



(c)



(d)

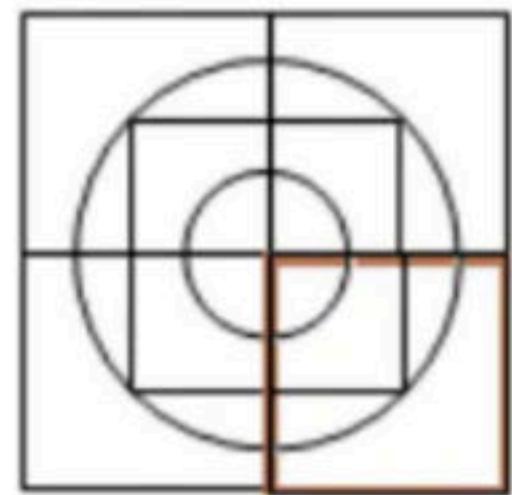
(a)

(b)

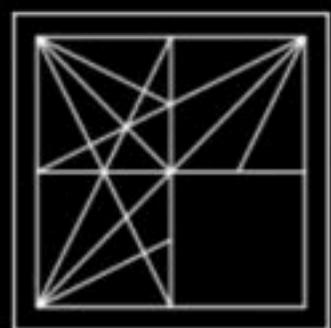
(c)

(d)

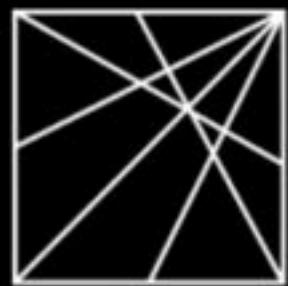
Sol. -(C)



**Questions Figure :**



**Answer figure**



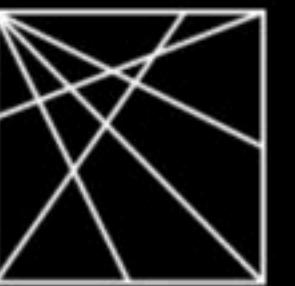
**(a)**



**(b)**

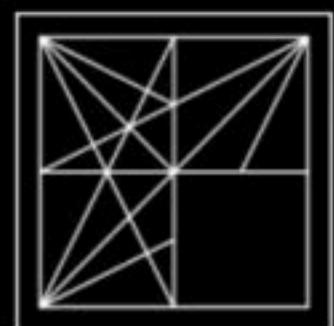


**(c)**

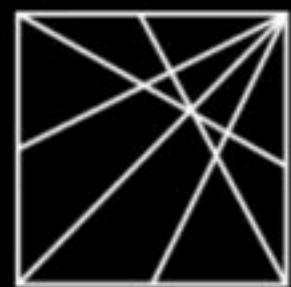


**(d)**

**Ans.-05 (B) Questions Figure :**



**Answer figure**



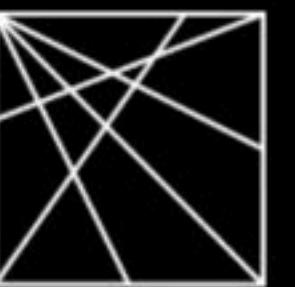
**(a)**



**(b)**



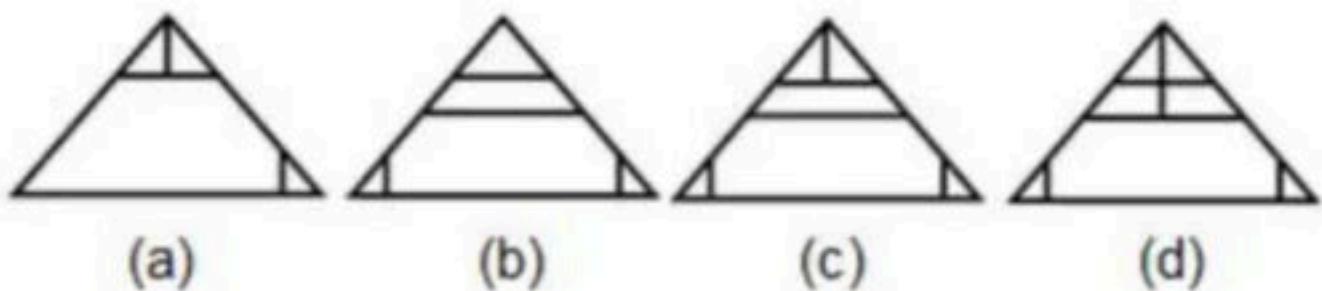
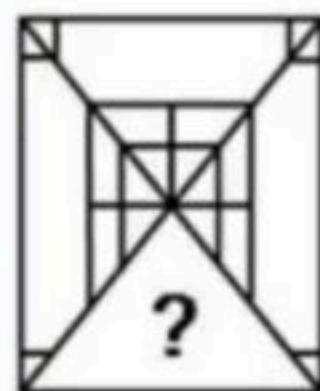
**(c)**



**(d)**

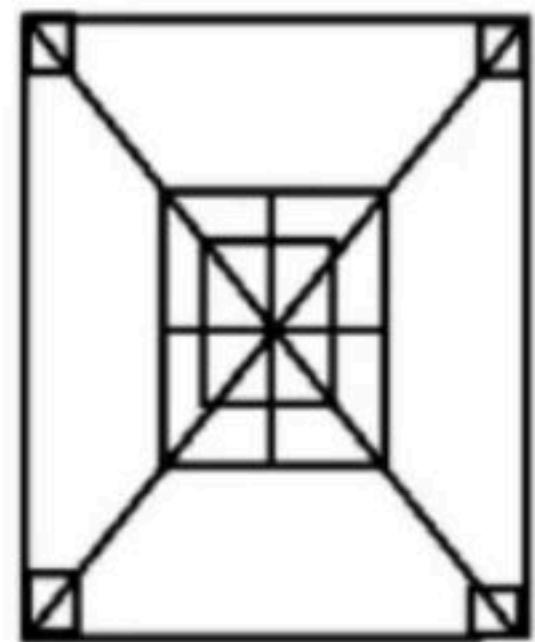


**Directions:** In the following question, a part of the figure is missing. Find out, from the given options (a, b, c and d), the right figure to replace the missing part.



- (a)
- (b)
- (c)
- (d)

Sol. -(D)



**Questions Figure :**



**Answer figure**



**(a)**



**(b)**

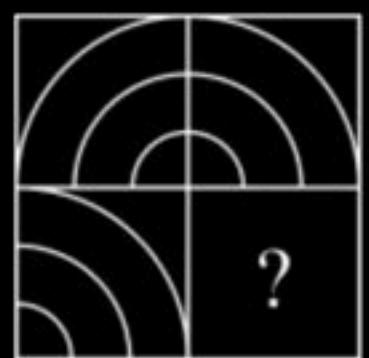


**(c)**



**(d)**

**Ans.-11 (C) Questions Figure :**



**Answer figure**



**(a)**



**(b)**



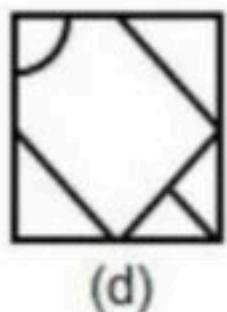
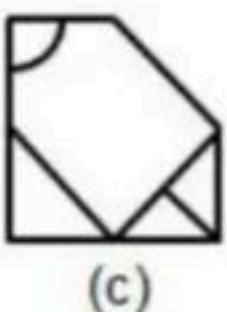
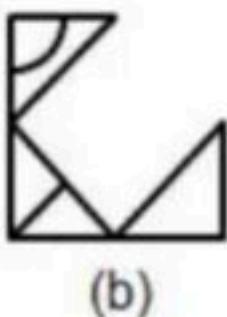
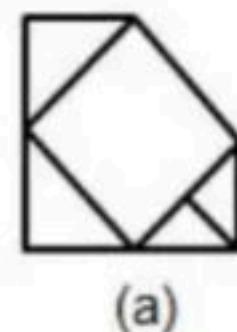
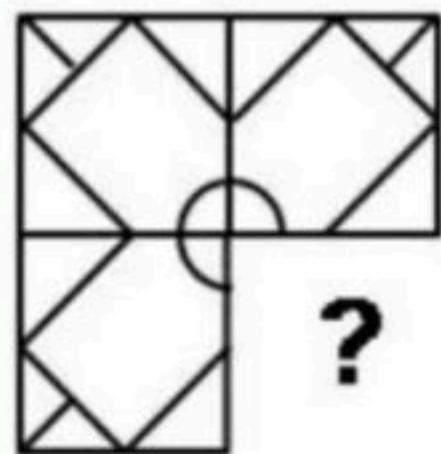
**(c)**



**(d)**



**Directions:** In the following question, a part of the figure is missing. Find out from the given options (a, b, c and d), the right figure to replace the missing part.



- (a)
- (b)
- (c)
- (d)

Sol. -(D)

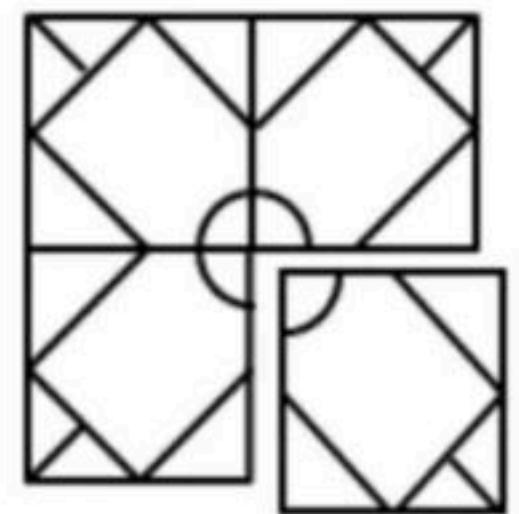
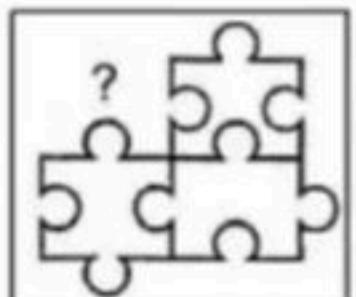
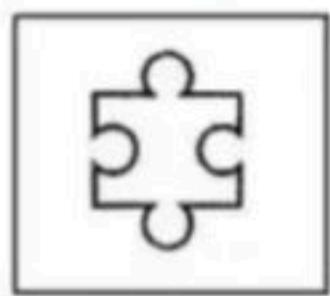


Figure (d) is the correct answer.

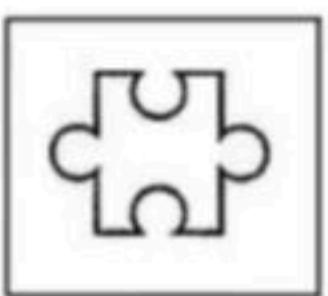
**Directions:** In the following question, a part of the figure is missing. Find out from the given options (a, b, c and d), the right figure to replace the question mark.



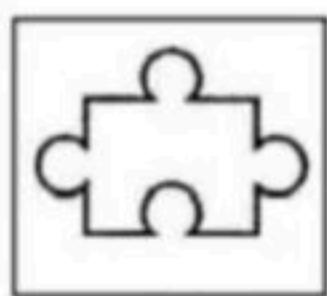
(X)



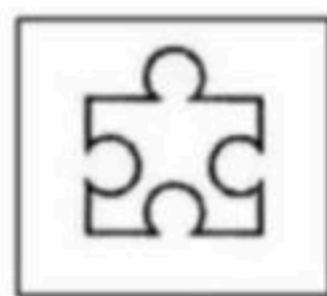
(a)



(b)



(c)



(d)

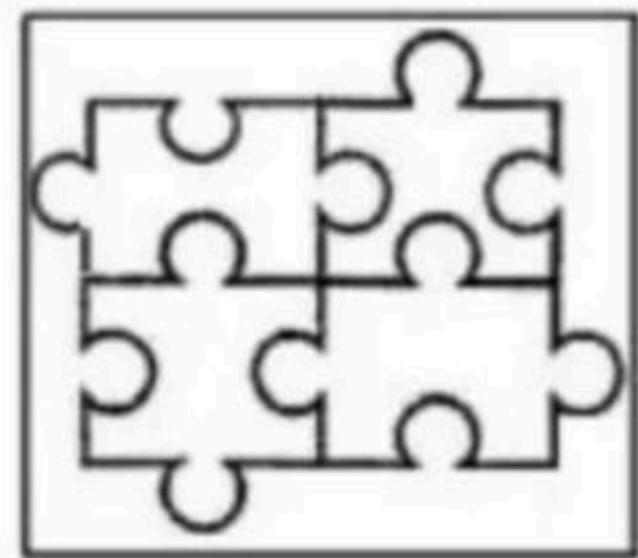
(a)

(b)

(c)

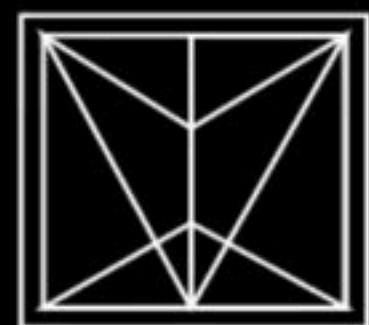
(d)

Sol. -(B)



# *Embedded Figure*

## Questions Figure :



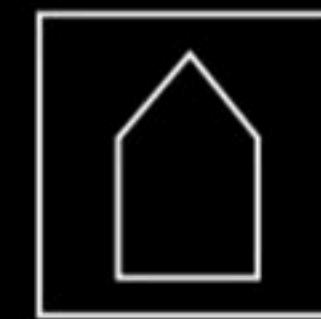
(a)



(b)

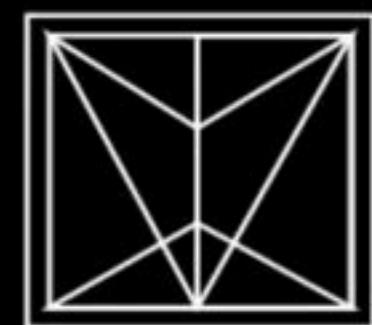


(c)



(d)

**Ans.-01 (A) Questions Figure :**



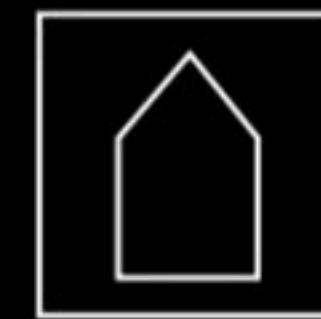
(a)



(b)



(c)

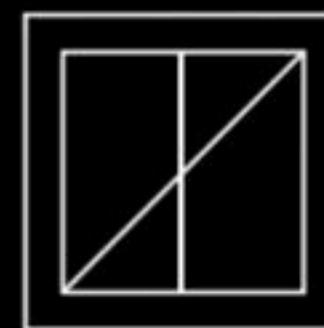


(d)

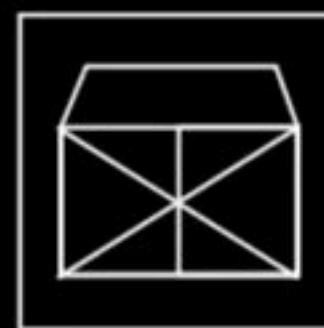
## Questions Figure :



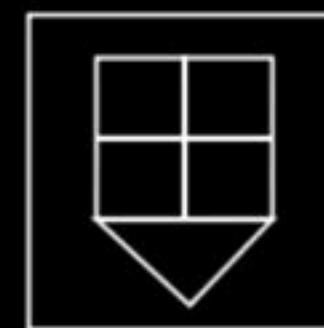
(a)



(b)



(c)

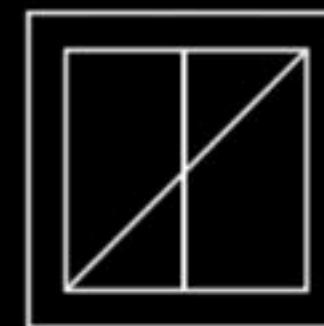


(d)

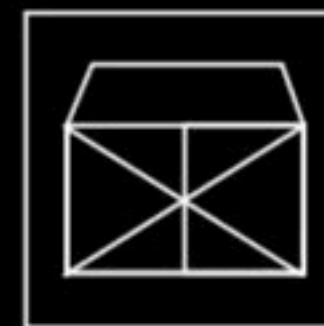
**Ans.-03 (C) Questions Figure :**



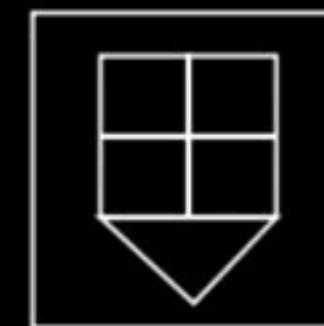
(a)



(b)

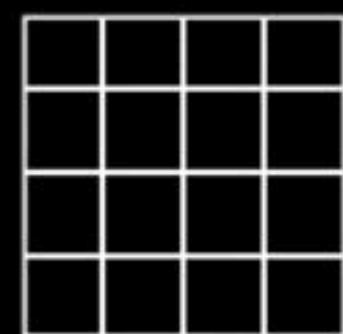
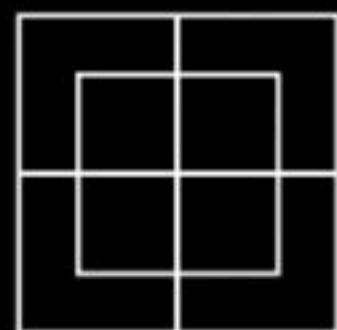


(c)

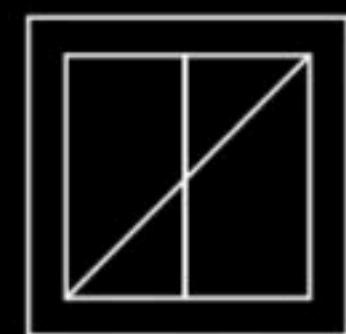


(d)

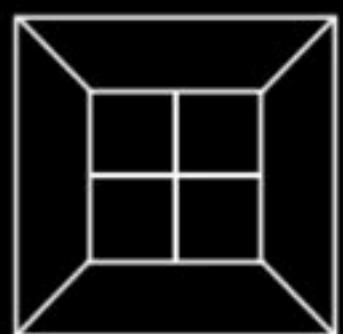
## Questions Figure :



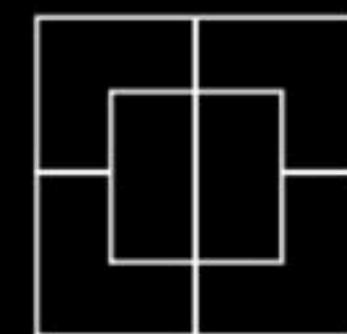
(a)



(b)

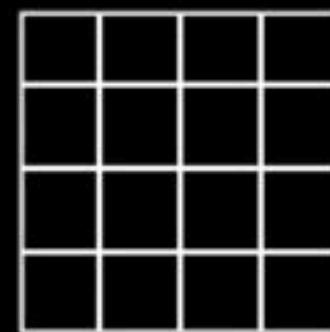
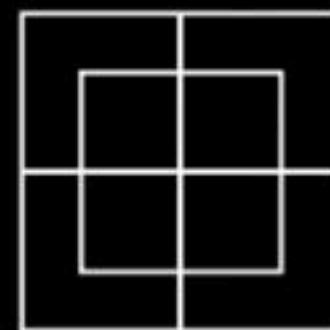


(c)

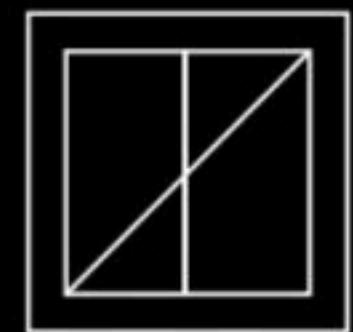


(d)

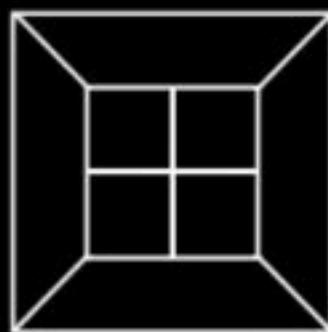
**Ans.-04 (A) Questions Figure :**



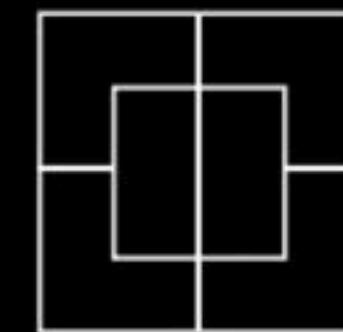
(a)



(b)



(c)



(d)



**Directions for questions 1 to 5:** In each of the questions given below which one of the five answer figures on the right should come after the problem figures on the left, if the sequence were continued?

**Problem Figures**

|       |       |       |       |       |
|-------|-------|-------|-------|-------|
| FLOCK | LFPKC | FPKCL | PFDLC | FDLCP |
|-------|-------|-------|-------|-------|

**Answer Figures**

|       |       |       |       |       |
|-------|-------|-------|-------|-------|
| DLCPF | FDSPC | DFSCP | DFSPC | DFLCP |
|-------|-------|-------|-------|-------|

(1) (2) (3) (4) (5)

a.

b.

c.

d.

e.

**Solution:**

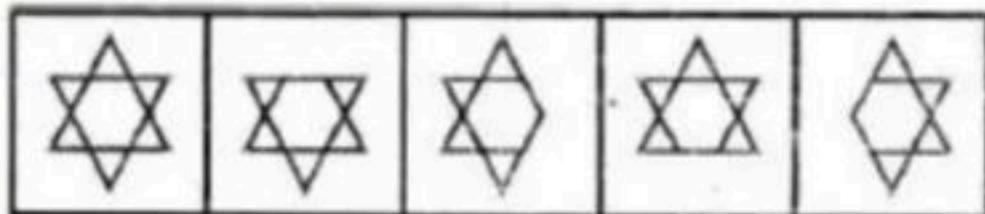
**Correct Answer : d**

**Marked Answer : x**

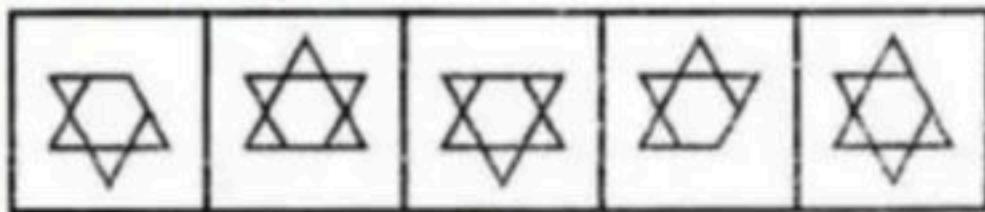
In alternate figure, a new element is added in the middle position and the extreme corners interchange their position with respect to their immediate neighbour letters.

**Directions for questions 1 to 5:** In each of the questions given below which one of the five answer figures on the right should come after the problem figures on the left, if the sequence were continued?

**Problem Figures**



**Answer Figures**



a.

b.

c.

d.

e.

**Solution:**

**Correct Answer : c**

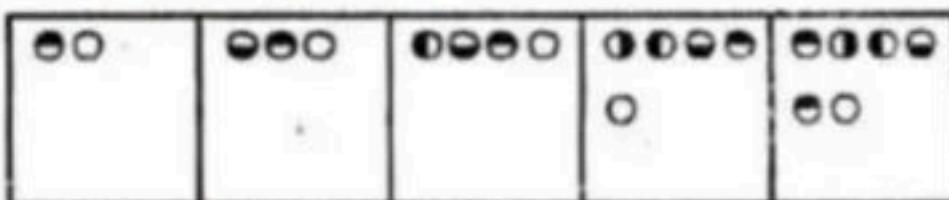
**Marked Answer : x**

**In the alternate figures one triangle get reduced in direction opposite to the previous figure.**

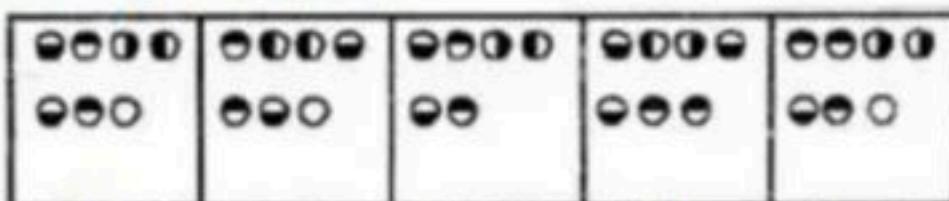


**Directions for questions 1 to 5:** In each of the questions given below which one of the five answer figures on the right should come after the problem figures on the left, if the sequence were continued?

**Problem Figures**



**Answer Figures**



(1) (2) (3) (4) (5)

a.

b.

c.

d.

e.



ABCABC is a six – digit number. (Therefore, both the As, both the Bs and both the Cs are the same.) C is an even digit.

Is ABCABC divisible by 13?

- (A) Yes
- (B) No
- (C) Divisible if  $A = 2$
- (D) Divisible if  $B = 5$
- (E) None of these



**Solution:**

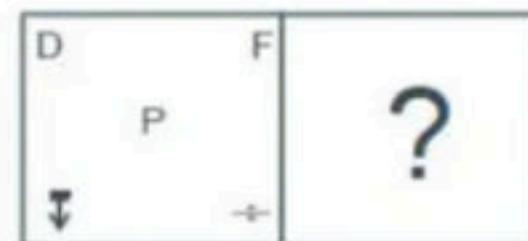
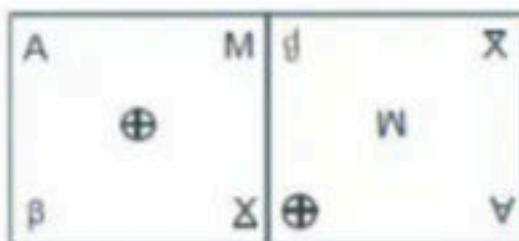
**Correct Answer : a**

**Marked Answer : x**

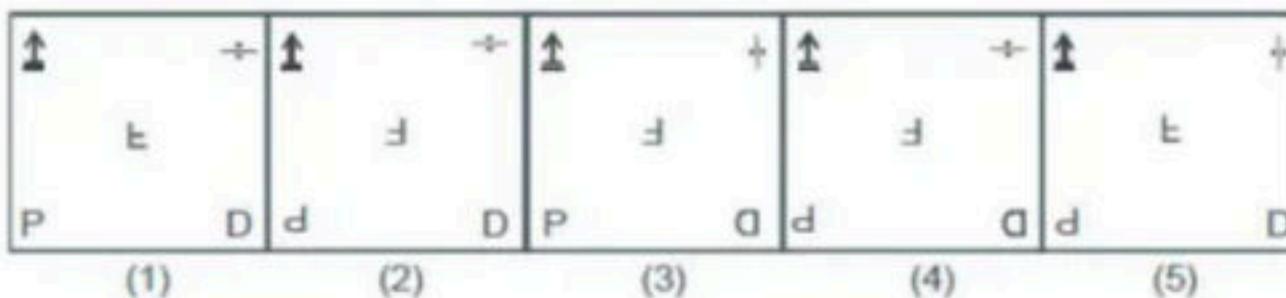
In each subsequent figure circle is increased by 1 and simultaneously extreme left corner circle get half shaded in the direction opposite to its immediate circle.

**Directions for questions 6 to 10:** The second figure in the first unit of problem figures bears a certain relationship to the first figure. Similarly one of the figures in the answer figures bears the same relationship to the first figure in the second unit of the problem figures. You are therefore to locate the figure, which would fit the question mark.

**Problem Figure**



**Answer Figure**



a.

b.

c.

d.

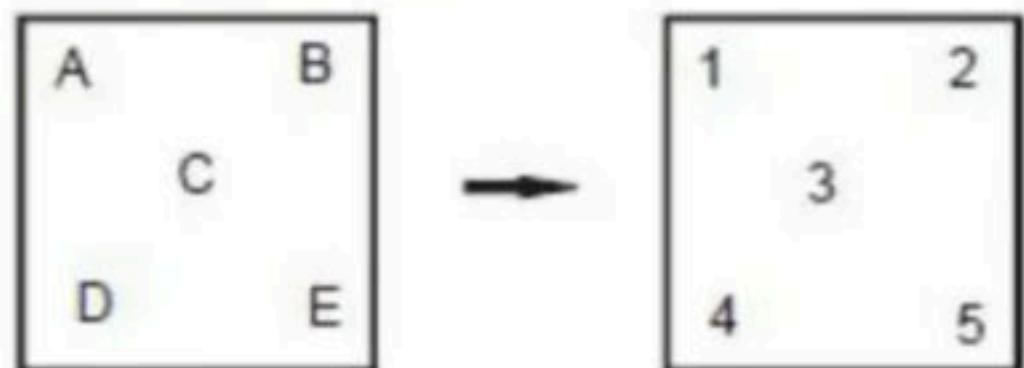
e.

Solution:

Correct Answer : d

Marked Answer : x

The logic here is that all the elements from left to right rotate by  $180^\circ$  in CW or ACW direction.

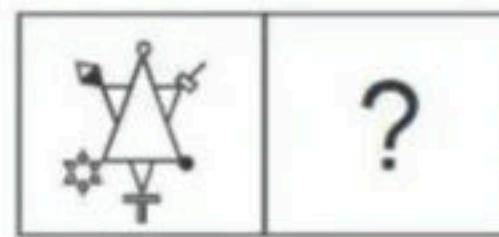
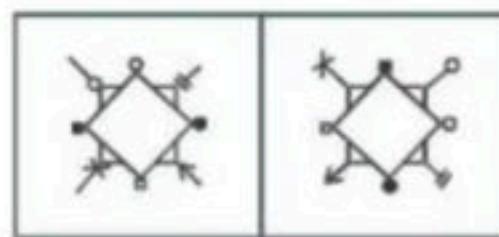


- (i) Element A moves to 5.
- (ii) Element B moves to 3.
- (iii) Element C moves to 4.
- (iv) Element D moves to 1.
- (v) Element E moves to 2.

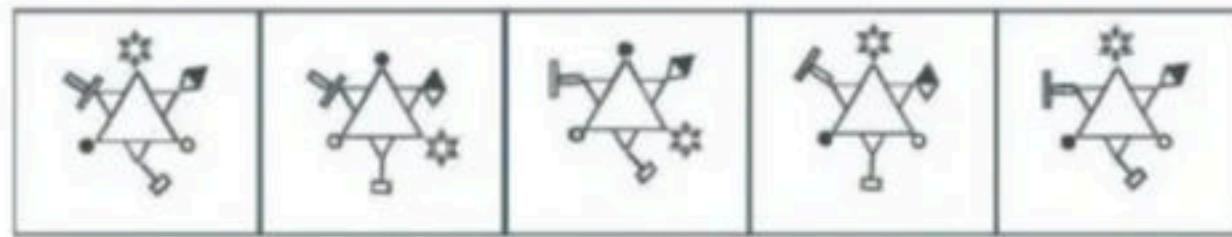
Hence, by applying the same logic in the second unit we get option (4) as the required answer.

**Directions for questions 6 to 10:** The second figure in the first unit of problem figures bears a certain relationship to the first figure. Similarly one of the figures in the answer figures bears the same relationship to the first figure in the second unit of the problem figures. You are therefore to locate the figure, which would fit the question mark.

**Problem Figure**



**Answer Figure**



(1)

(2)

(3)

(4)

(5)

a.

b.

c.

d.

e.



**Solution:**

**Correct Answer : e**

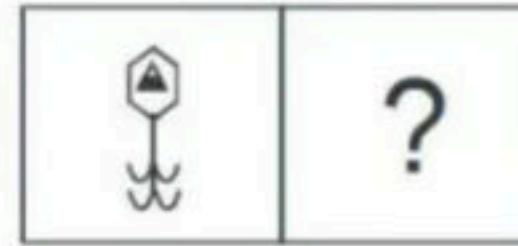
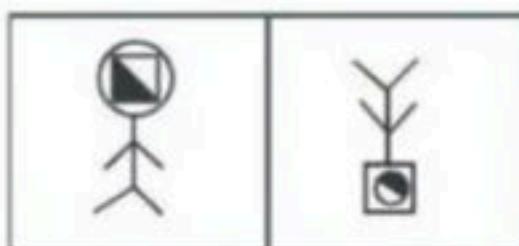
**Marked Answer : x**

The logic here is that all the elements move one steps in CW direction along their respective squares and the elements along the vertices of the inner square rotate by 90° in ACW direction.



**Directions for questions 6 to 10:** The second figure in the first unit of problem figures bears a certain relationship to the first figure. Similarly one of the figures in the answer figures bears the same relationship to the first figure in the second unit of the problem figures. You are therefore to locate the figure, which would fit the question mark.

**Problem Figure**



**Answer Figure**



(1)

(2)

(3)

(4)

(5)

a.

b.

c.

d.

e.



**Solution:**

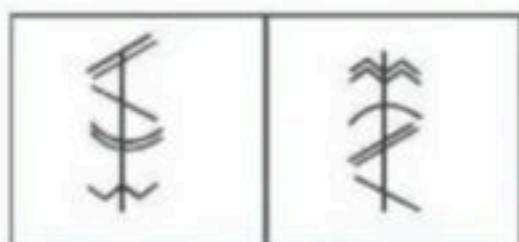
**Correct Answer :** a

**Marked Answer :** x

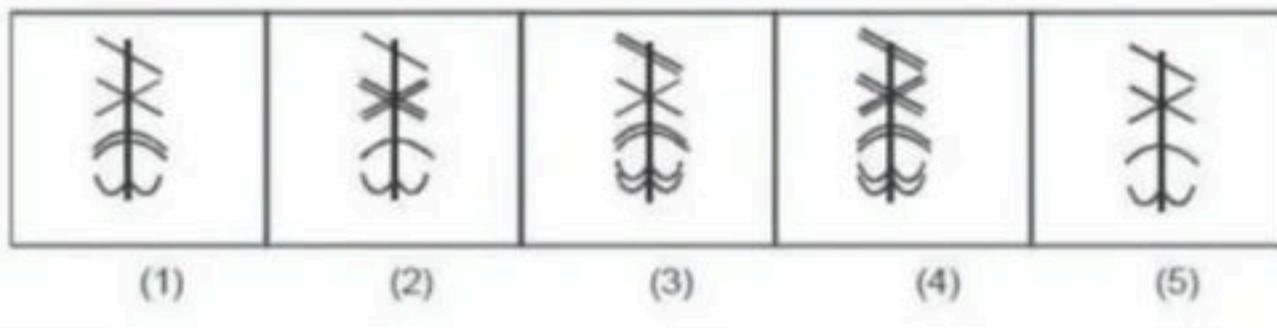
The logic here is that the figure rotates by  $180^\circ$  CW or ACW direction. The inner figure comes to the outer place and the outer figure goes to the inner place. The shaded region shift to the other figure.

**Directions for questions 6 to 10:** The second figure in the first unit of problem figures bears a certain relationship to the first figure. Similarly one of the figures in the answer figures bears the same relationship to the first figure in the second unit of the problem figures. You are therefore to locate the figure, which would fit the question mark.

**Problem Figure**



**Answer Figure**



a.

b.

c.

d.

e.



**Solution:**

**Correct Answer : c**

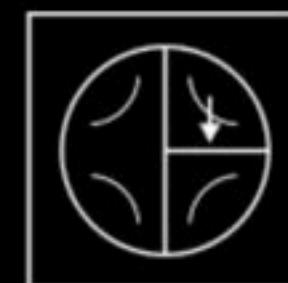
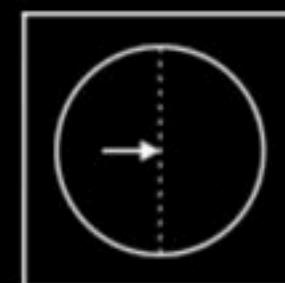
**Marked Answer : x**

The logic here is that the middle two elements as well as the outer two elements exchanges their place and all the single elements become double and all the double elements become single. Also, the linear elements rotate by  $90^\circ$  and the non-linear elements rotate by  $180^\circ$ .

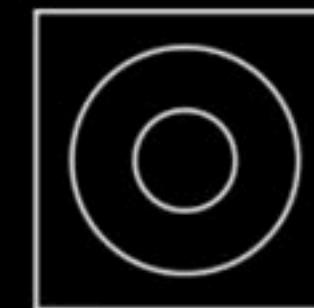
# *Paper Cutting and Folding*

**A piece of paper is folded and cut as shown below in the question figures.  
From the given answer figures, indicate how it will appear when opened.**

**Question figures :**



**Answer figure**



**(a)**

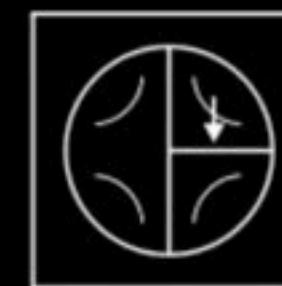
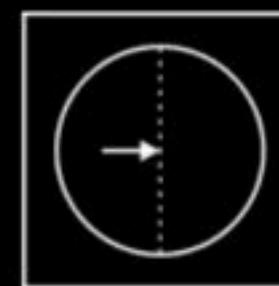
**(b)**

**(c)**

**(d)**

**Ans.-01 (D)** A piece of paper is folded and cut as shown below in the question figures. From the given answer figures, indicate how it will appear when opened.

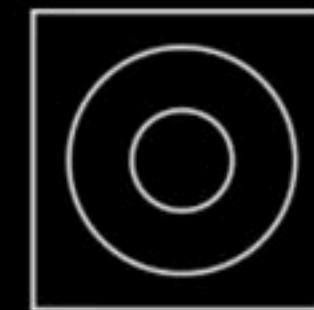
**Question figures :**



**Answer figure**



(a)



(b)

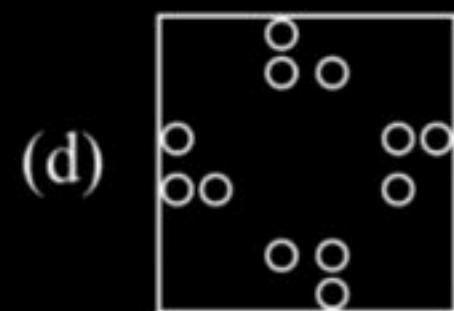
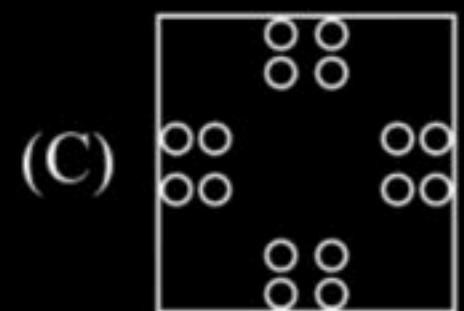
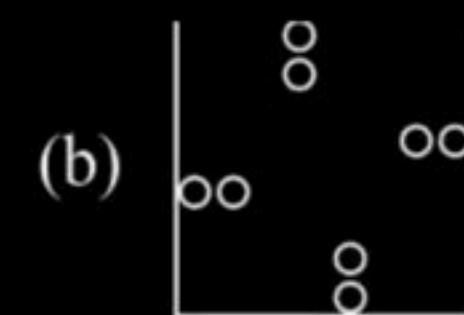
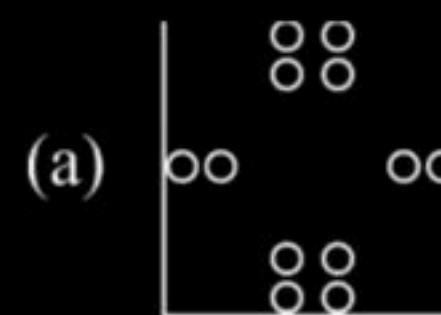
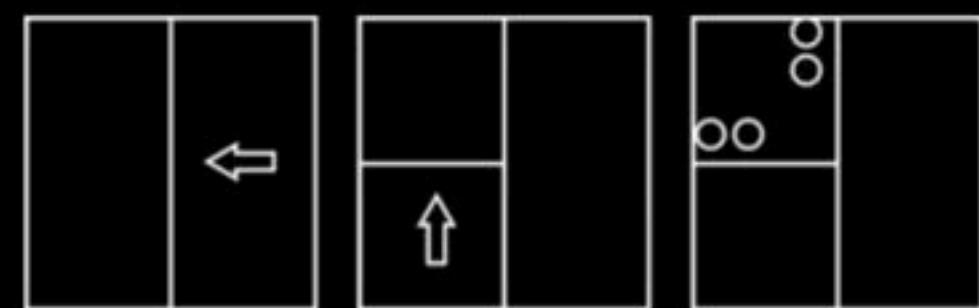


(c)

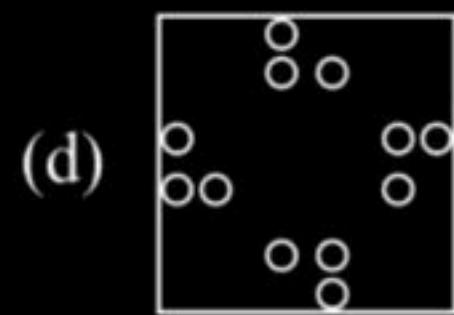
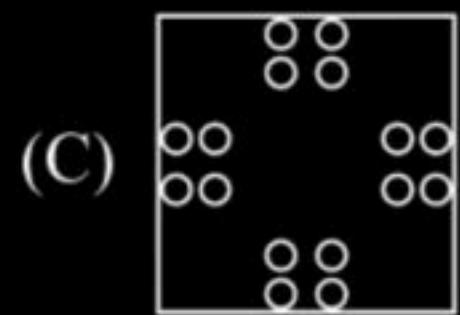
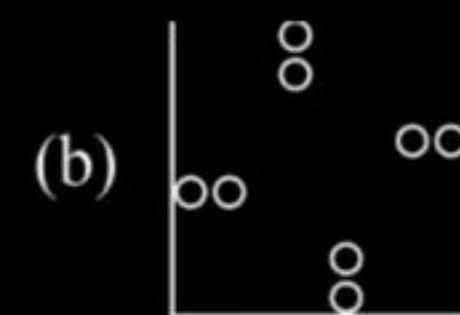
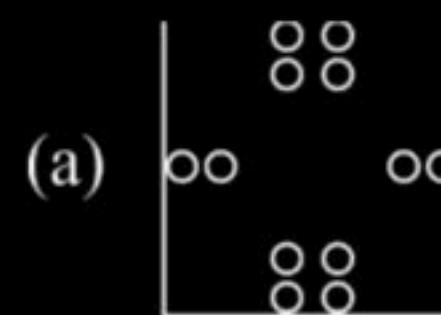
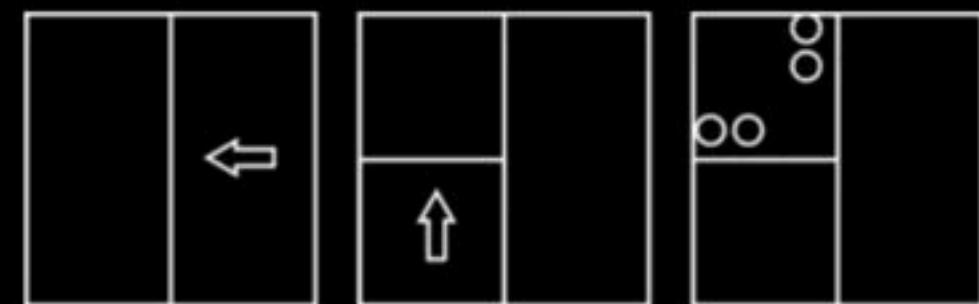


(d)

A piece of paper is folded and punched as shown below in the question figures. From the given answer figures, indicated how it will appear when opened.

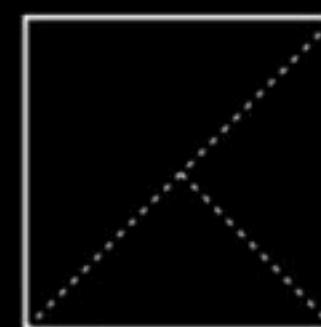
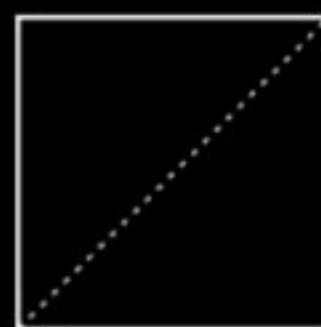


**Ans.-02 (C)** A piece of paper is folded and punched as shown below in the question figures. From the given answer figures, indicated how it will appear when opened.

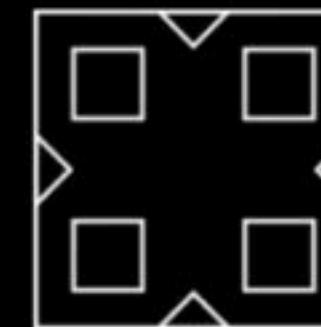


A piece of paper is folded and cut as shown below in the question figures.  
From the given answer figures, indicate how it will appear when opened.

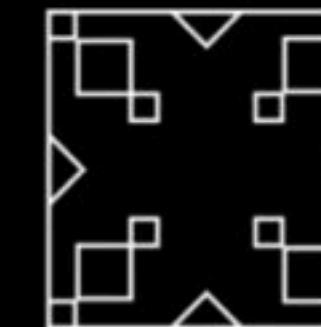
Question figures :



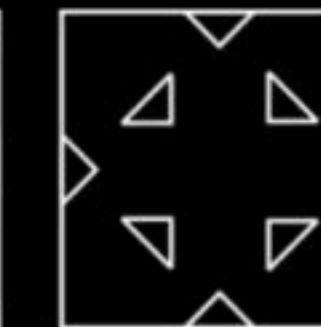
Answer figure



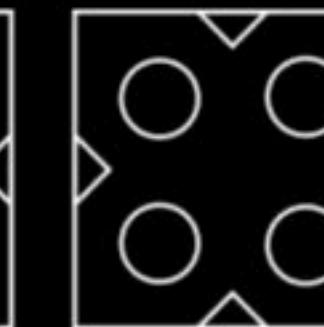
(a)



(b)



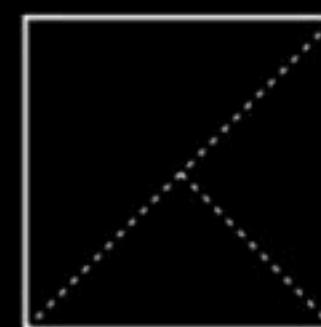
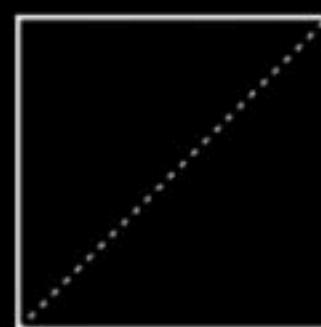
(c)



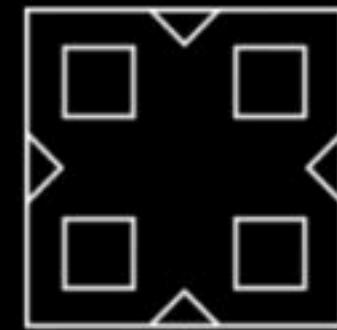
(d)

**Ans.-03 (A)** A piece of paper is folded and cut as shown below in the question figures. From the given answer figures, indicate how it will appear when opened.

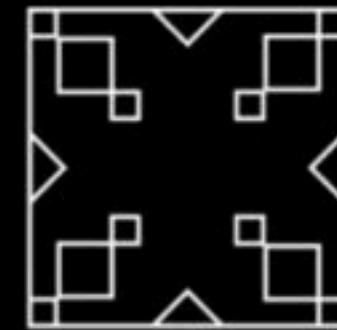
Question figures :



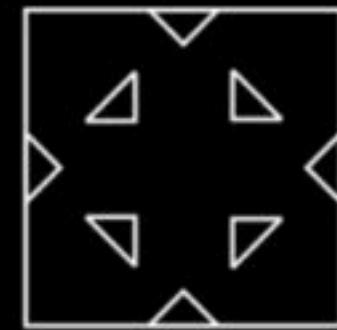
Answer figure



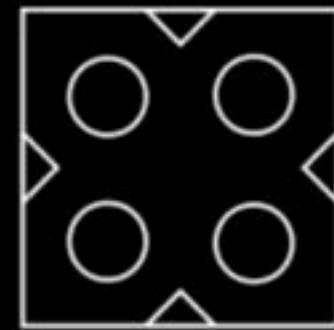
(a)



(b)

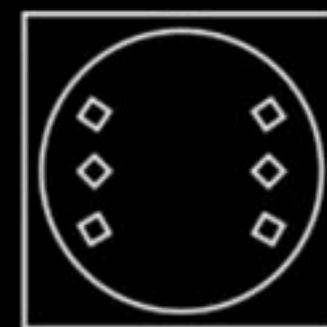
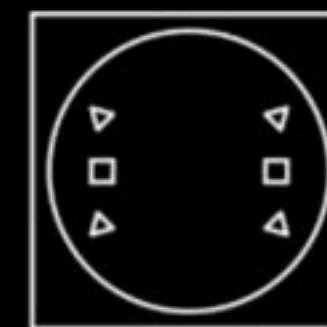
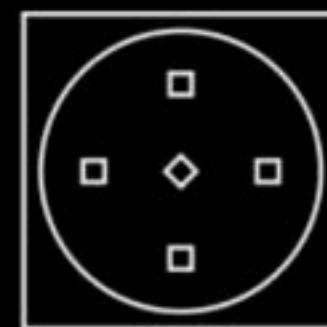
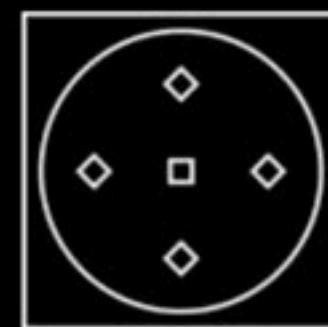
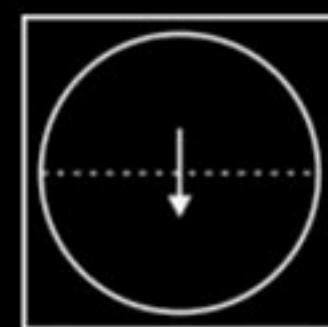


(c)



(d)

A piece of paper is folded and punched as shown below in the question figure. From the given answer figures, indicate how it will appear when opened.



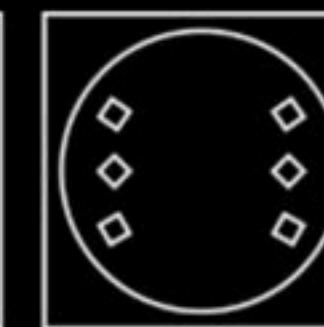
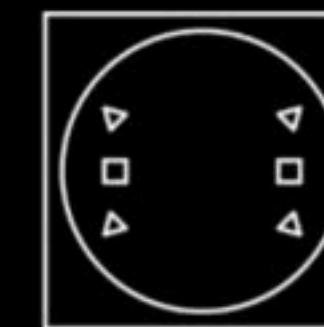
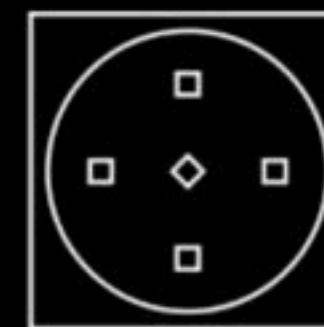
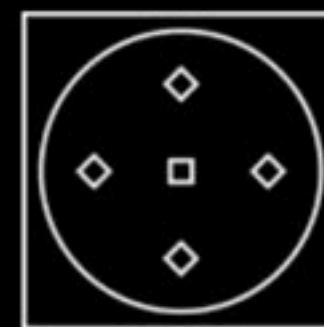
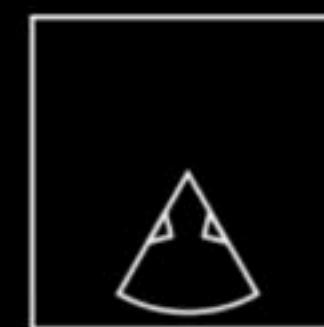
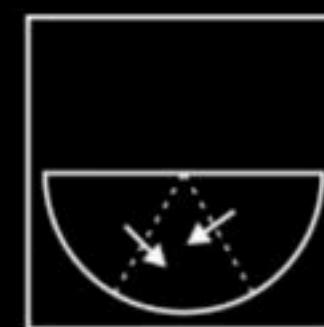
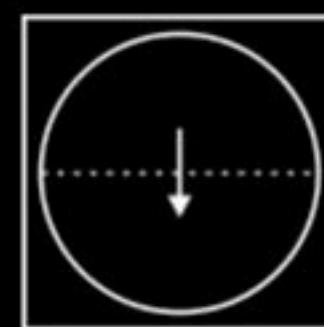
(a)

(b)

(c)

(d)

**Ans.-06 (D)** A piece of paper is folded and punched as shown below in the question figure. From the given answer figures, indicate how it will appear when opened.



(a)

(b)

(c)

(d)

Consider two rectangular sheets, Sheet M and Sheet N of dimensions 6 cm x 4 cm each.

Folding operation 1: The sheet is folded into half by joining the short edges of the current shape.

Folding operation 2: The sheet is folded into half by joining the long edges of the current shape.

Folding operation 1 is carried out on Sheet M three times.

Folding operation 2 is carried out on Sheet N three times.

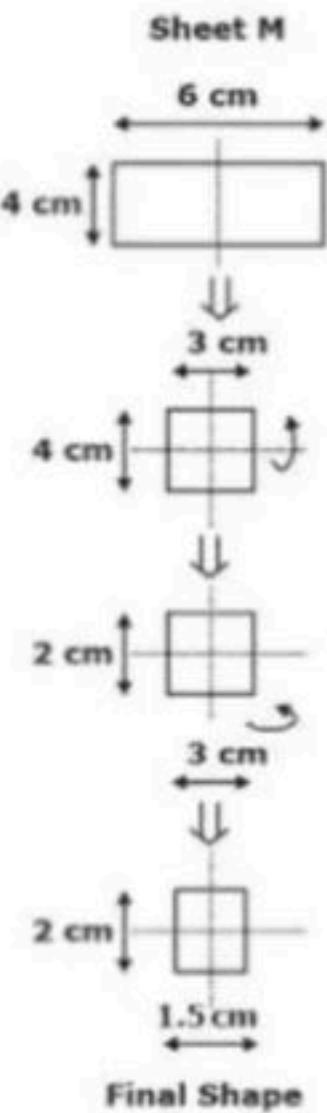
The ratio of perimeters of the final folded shape of Sheet N to the final folded shape of Sheet M is \_\_\_\_.

- (A) 5 : 13
- (C) 7 : 5

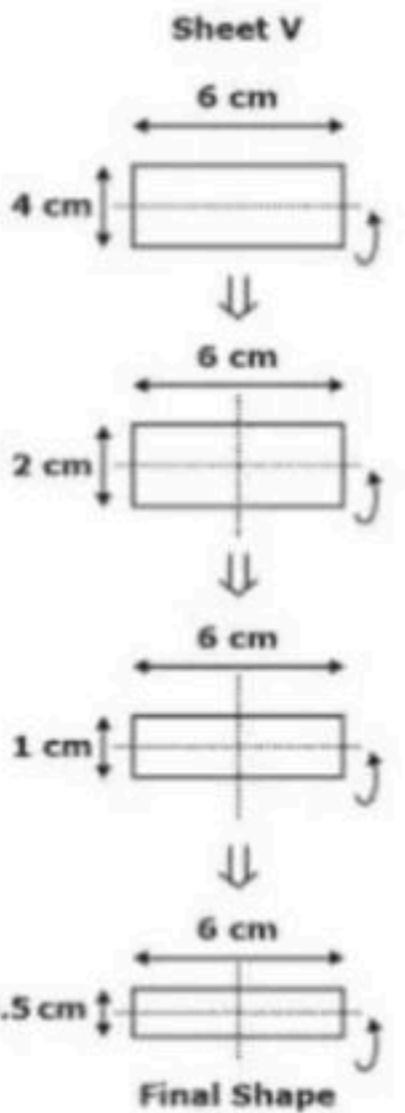
- (B) 13 : 7
- (D) 3 : 2



## Solution:



$$\text{Perimeter} = 2(2+1.5) \\ = 7 \text{ cm}$$



$$\text{Perimeter} = 2(6+0.5) \\ = 13 \text{ cm}$$

Required Ratio = 13/7



**Directions for questions 1 to 5:** Study the following arrangement carefully and answer the questions given below:

7 6 1 7 9 2 4 1 5 6 4 9 2 3 4 1 2 5 8 5 8 4 8 3 1 2 7 5 2 6 7 2 9 5 3

How many 2s are there in the above arrangement, each of which is immediately followed by a digit which has a numerical value of more than four?

- 
- a.  None
  - b.  One
  - c.  Two
  - d.  Three
  - e.  More than three
-



**Solution:**

**Correct Answer : e**

**Marked Answer : x**

7 6 1 7 9 2 4 1 5 6 4 9 2 3 4 1 2 5 8 5 8 4 8 3 1 2 7 5 2  
6 7 2 9 5 3

There are four such arrangements.



**Directions for questions 1 to 5:** Study the following arrangement carefully and answer the questions given below:

7 6 1 7 9 2 4 1 5 6 4 9 2 3 4 1 2 5 8 5 8 4 8 3 1 2 7 5 2 6 7 2 9 5 3

How many such 1s are there in the above arrangement, each of which is immediately preceded by a perfect square?

- 
- a.  None
  - b.  One
  - c.  Two
  - d.  Three
  - e.  More than three
-



**Solution:**

**Correct Answer : c**

**Marked Answer : x**

7 6 1 7 9 2 4 1 5 6 4 9 2 3 4 1 2 5 8 5 8 4 8 3 1 2 7 5 2  
6 7 2 9 5 3

∴ There are two such 1's in the arrangement.



**Directions for questions 1 to 5:** Study the following arrangement carefully and answer the questions given below:

7 6 1 7 9 2 4 1 5 6 4 9 2 3 4 1 2 5 8 5 8 4 8 3 1 2 7 5 2 6 7 2 9 5 3

How many such 5s are there in the above arrangement each of which is immediately preceded and followed by an odd digit?

a.  None

b.  One

c.  Two

d.  Three

e.  More than three



**Solution:**

**Correct Answer : b**

**Marked Answer : x**

7 6 1 7 9 2 4 1 5 6 4 9 2 3 4 1 2 5 8 5 8 4 8 3 1 2 7 5  
2 6 7 2 9 5 3

∴ There is only one such arrangement.



**Directions for questions 1 to 5:** Study the following arrangement carefully and answer the questions given below:

7 6 1 7 9 2 4 1 5 6 4 9 2 3 4 1 2 5 8 5 8 4 8 3 1 2 7 5 2 6 7 2 9 5 3

Which of the following is third to the left of the eighteenth digit from the left end of the above arrangement?

- a.  8
- b.  3
- c.  4
- d.  5
- e.  1



**Solution:**

**Correct Answer : c**

**Marked Answer : x**

3rd to the left of 18th from the left  
=  $(18 - 3)$  15th from the left = 4.



**Directions for questions 1 to 5:** Study the following arrangement carefully and answer the questions given below:

7 6 1 7 9 2 4 1 5 6 4 9 2 3 4 1 2 5 8 5 8 4 8 3 1 2 7 5 2 6 7 2 9 5 3

If all the even digits are deleted from the above arrangement, which of the following will be ninth from the right end of the arrangement?

a.  9

b.  3

c.  1

d.  5

e.  7



**Solution:**

**Correct Answer : d**

**Marked Answer : x**

After deleting the even digits from the arrangement,  
we get

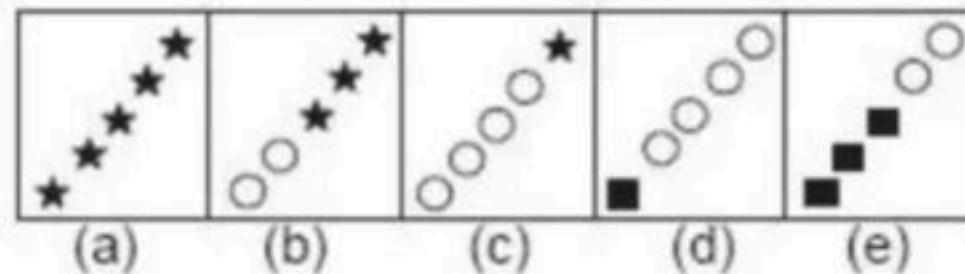
7 1 7 9 1 5 9 3 1 **5** 5 3 1 7 5 7 9 5 3

∴ 5 is the required digit.

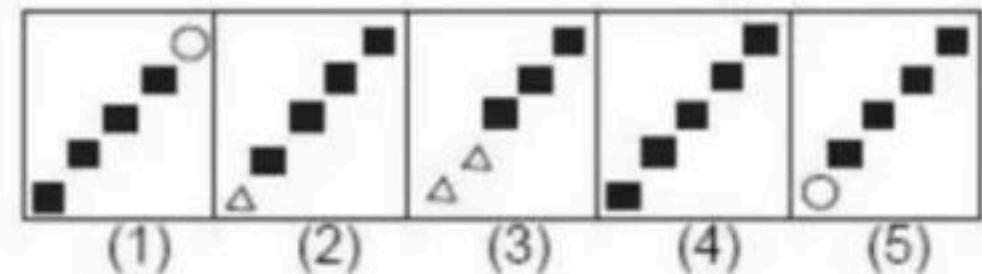


**Directions for questions 1 to 5:** In each of the questions given below which one of the five answer figures (1 - 5) should come after the problem figures (a - e) if the sequence were continued ?

**Problem Figures**



**Answer Figures**



a.

b.

c.

d.

e.



**Solution:**

**Correct Answer : d**

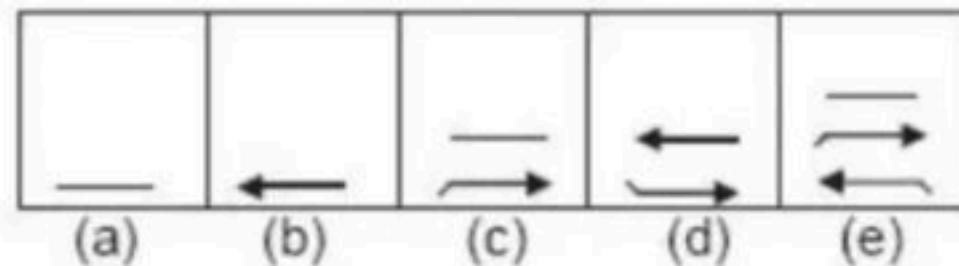
**Marked Answer : x**

**In each subsequent figure two designs are replaced with new designs.**

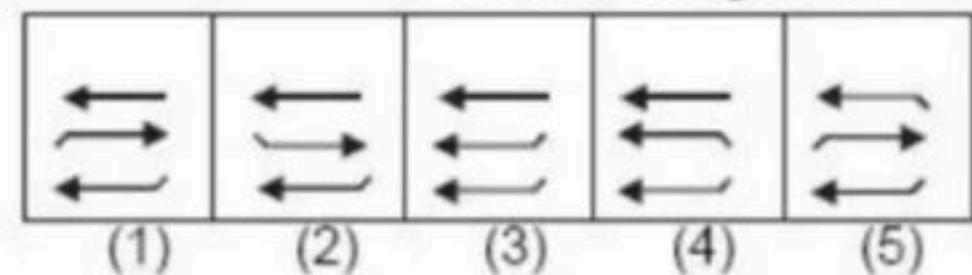


**Directions for questions 1 to 5:** In each of the questions given below which one of the five answer figures (1 - 5) should come after the problem figures (a - e) if the sequence were continued ?

**Problem Figures**



**Answer Figures**



a.

b.

c.

d.

e.



**Solution:**

**Correct Answer : b**

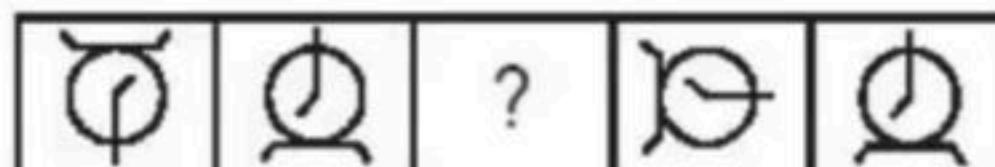
**Marked Answer : x**

In the subsequent figures one arrow and one line segment are added alternately and the designs are inverted according to a certain pattern.



**Directions for questions 6 to 10:** In each of the following questions, there are two sets of figures. The figures given above are **Problem Figures** and those given under them are **Answer Figures**. A series is established if one of the Answer Figures is placed in place of question mark (?). You have to select that option from the Answer Figures which will continue the series given in the **Problem Figure** and mark it as the answer.

**Problem Figures**



**Answer Figures**



(1) (2) (3) (4) (5)

a.

b.

c.

d.

e.



**Solution:**

**Correct Answer : e**

**Marked Answer : x**

The tangent to the circle moves in the following manner, first it rotates by  $180^\circ$  and in next step it rotates by  $90^\circ$  ACW. Similarly, the horizontal line first rotates by  $180^\circ$  and in next step it rotates by  $90^\circ$  ACW.



**Directions for questions 6 to 10:**

Study the following arrangement carefully and answer the questions given below:

B E 5 % R A T @ D M © 1 9 H 7 8 ★ 6 G W \$ 3 F 2 N U Y 4 I P K

Which of the following is the third to the right of the tenth from the right end of the above arrangement?

- a.  ON
- b.  OT
- c.  OW
- d.  OF
- e.  None of these



**Solution:**

**Correct Answer : a**

**Marked Answer : x**

**3rd to the right of tenth from the right end means 7th from the right end, i.e, N.**



**Directions for questions 6 to 10:**

Study the following arrangement carefully and answer the questions given below:

B E 5 % R A T @ D M © 1 9 H 7 8 ★ 6 G W \$ 3 F 2 N U Y 4 I P K

Which of the following is the sixth to the left of the eleventh from the left end of the above arrangement?

- a. ○★
- b. ○R
- c. ○Y
- d. ○7
- e. ○None of these



**Solution:**

**Correct Answer : b**

**Marked Answer : x**

**6th to the left of 11th from the left end means 5th from the left, i.e, R.**



**Directions for questions 6 to 10:**

Study the following arrangement carefully and answer the questions given below:

B E 5 % R A T @ D M © 1 9 H 7 8 ★ 6 G W \$ 3 F 2 N U Y 4 I P K

---

How many such vowels are there in the above arrangement each of which is immediately preceded by a consonant?

---

- a.  None
- b.  One
- c.  Two
- d.  Three
- e.  Four



**Solution:**

**Correct Answer : d**

**Marked Answer : x**

|           |       |
|-----------|-------|
| Consonant | Vowel |
|-----------|-------|

Such combination are : BE; RA; NU



In a certain code language **BEAT** is written as **UBFC**. How is **SORE** written in that code?

---

---

a.  FSPT

---

b.  DQNR

---

c.  FQPR

---

d.  DSNT

---

e.  None of these



**Solution:**

**Correct Answer : a**

**Marked Answer : x**

$$B \xrightarrow{+1} C$$

U

$$E \xrightarrow{+1} F \xrightarrow{\text{after upside down}} B$$

$$A \xrightarrow{+1} B$$

F

$$T \xrightarrow{+1} U$$

C

So 'SORE' is coded as 'FSPT'



How many meaningful English words can be made with the letters BGRA using each letter only once in each word?

---

---

a.  None

---

b.  One

---

c.  Two

---

d.  Three

---

e.  More than three



**Solution:**

**Correct Answer : d**

**Marked Answer : x**

**BRAG, GRAB and GARB.**



Four of the following five are alike in a certain way and so form a group. Which is the one that does not belong to that group?

a.  24

b.  32

c.  27

d.  36

e.  15

**Solution:**

**Correct Answer : b**

**Marked Answer : x**

**All are multiple of 3, except 32.**



In a certain code DOWN is written as 5916 and NEAR is written as 6342 How is ROAD written in that code?

a.  2915

b.  2645

c.  2495

d.  2945

e.  None of these



**Solution:**

**Correct Answer : d**

**Marked Answer : x**

As,

|   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|
| D | O | W | N | E | A | R |
| 5 | 9 | 1 | 6 | 3 | 4 | 2 |

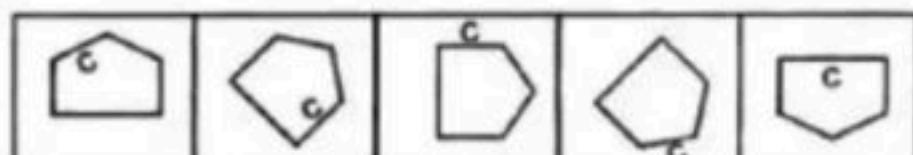
Similarly,

|   |   |   |   |
|---|---|---|---|
| R | O | A | D |
| 2 | 9 | 4 | 5 |



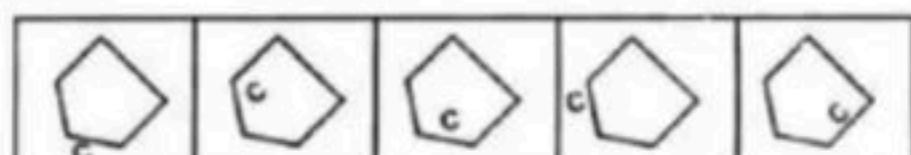
**Directions for questions 1 to 5 :** In each of the questions given below which one of the five answer figures on the right should come after the problem figures on the left, if the sequence were continued?

### Problem Figures



- (a) (b) (c) (d) (e)

### Answer Figures



- (1) (2) (3) (4) (5)

a.

b.

c.

d.

e.



**Solution:**

**Correct Answer : c**

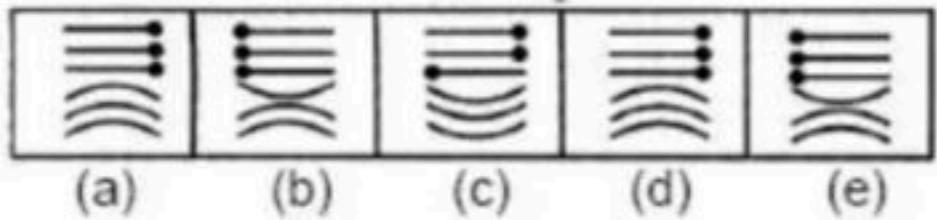
**Marked Answer : x**

**The pentagon is rotating by  $45^\circ$  in clock wise direction. 'C' is moving two steps forward and three steps backward alternately.**

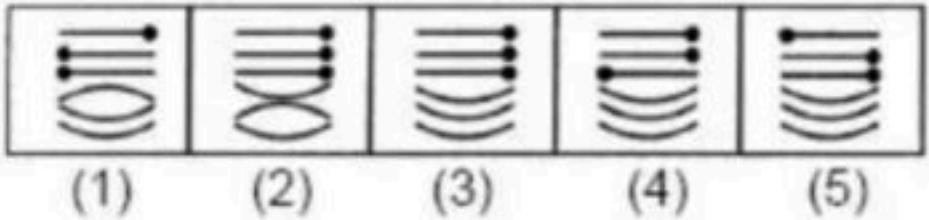


**Directions for questions 1 to 5 :** In each of the questions given below which one of the five answer figures on the right should come after the problem figures on the left, if the sequence were continued?

**Problem Figures**



**Answer Figures**



a.

b.

c.

d.

e.



**Solution:**

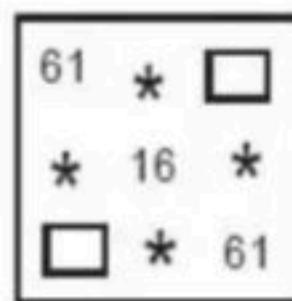
**Correct Answer : d**

**Marked Answer : x**

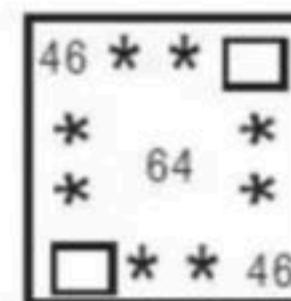
Four elements get inverted in each step starting with top four and then other four and so on i.e. four from top, next four and so on



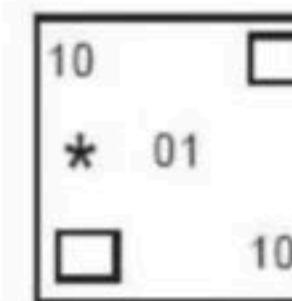
**Directions for questions 6 to 10:** Out of the five figures 1, 2, 3, 4 and 5, given in each of the following questions, four are similar in a certain way, one figure is not like the other four. Find the odd man out.



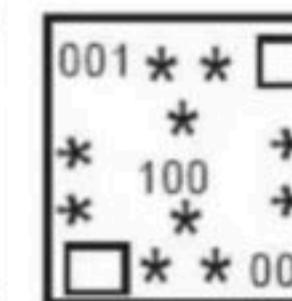
(1)



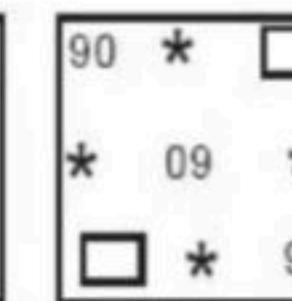
(2)



(3)



(4)



(5)

a. ○

b. ○

c. ○

d. ○

e. ○



**Solution:**

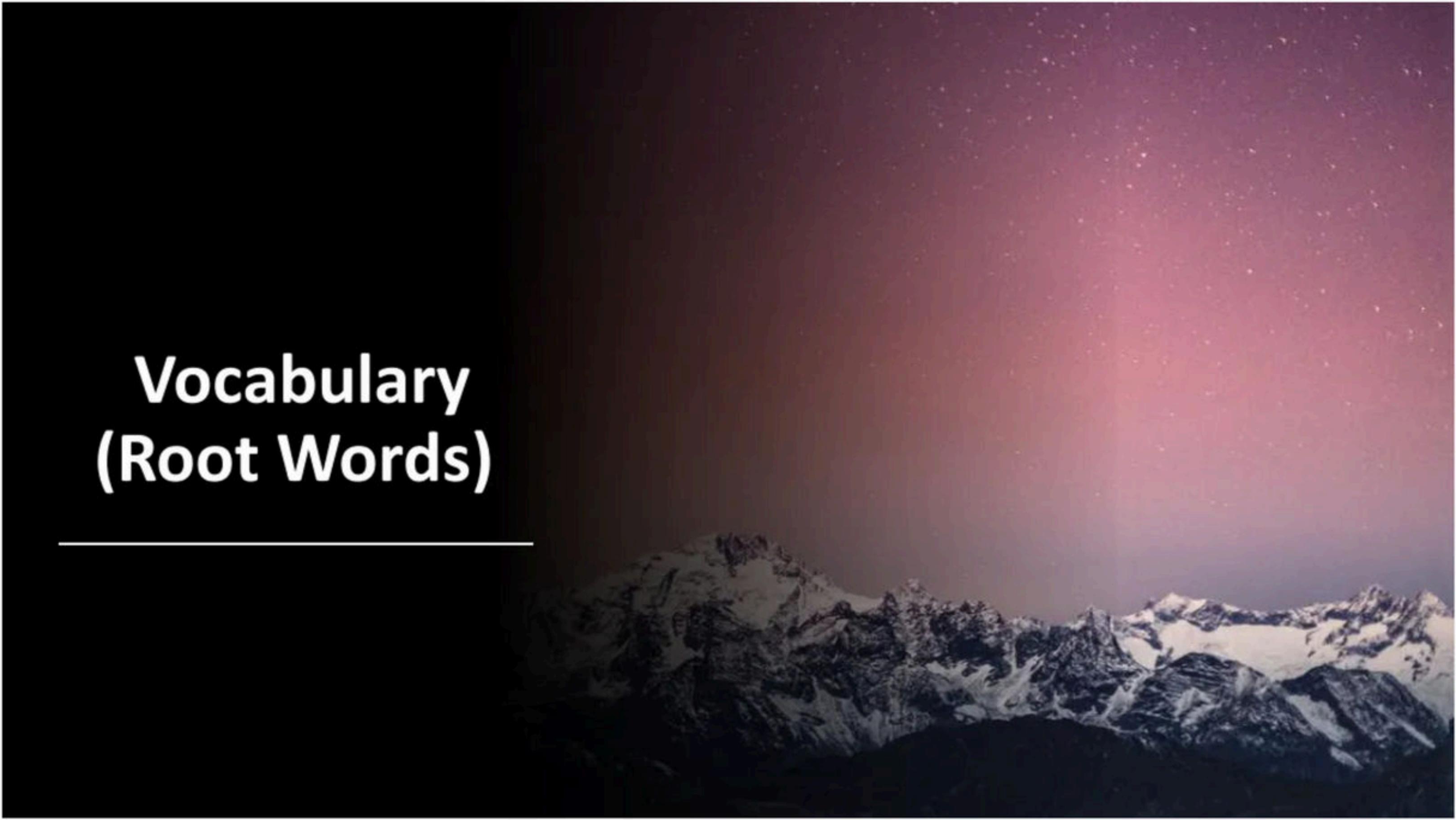
**Correct Answer : e**

**Marked Answer : x**

The number of \* is equal to the square root of the middle number. In figure 5, the square root of 9 is 3, while there are 4(\*) objects.

# Vocabulary (Root Words)

---





**Directions:** The question has some words which have a group of common letters. Study the words and choose the correct option which means the same as the group of letters which is common.

**Bibliomania, Egomania, Monomania, Mythomania**

What does the common part 'mania' mean?



ANS.- (C) "mania" is the root word that means 'craze'.



**Directions:** The question has some words which have a group of common letters. Study the words and choose the correct option which means the same as the group of letters which is common.

Science, Conscious, Scientific, Omniscient  
What does the common part 'sci' mean?



ANS.- (A) 'sci' is the root word that means 'know'.



**Directions:** The question has some words which have a group of common letters. Study the words and choose the correct option which means the same as the group of letters which is common.

## Bankrupt, Erupt, Interrupt, Disrupt

What does the common part 'rupt' mean?



ANS.- (B) `rupt` is the root word that means `break`.



**Directions:** The question has some words which have a group of common letters. Study the words and choose the correct option which means the same as the group of letters which is common.

**Acrophobia, Aquaphobia, Damophobia, Gynophobia**

What does the common part 'phobia' mean?

ANS.- (A) "phobia" is the root word that means "fear".





**Directions:** The question has some words which have a group of common letters. Study the words and choose the correct option which means the same as the group of letters which is common.

## Antonym, Synonym, Homonym, Acronym

What does the common part "onym" mean?



ANS.- (D) "onym" is the rootword that means 'name'.



**Directions:** The question has some words which have a group of common letters. Study the words and choose the correct option which means the same as the group of letters which is common.

Mortal, Mortgage, Moron, Morose

What does the common part "mor" mean?

- (A) death
- (B) life
- (C) healthy
- (D) unhealthy

ANS.- (A) "mor" is the root word that means "death".





**Directions:** The question has some words which have a group of common letters. Study the words and choose the correct option which means the same as the group of letters which is common.

# Pendulum, Pending, Suspend, Appendix

What does the common part "pend" mean?



ANS.- (C) "Pend" is the root word that means "hang".



**Directions:** The question has some words which have a group of common letters. Study the words and choose the correct option which means the same as the group of letters which is common.

**Dictum, Dictation, Contradict, Dictatorship**

What does the common part "dict" mean?

- (A) say
  - (B) ask
  - (C) order
  - (D) told



ANS.- (A) "dict" is the root word that means "say".



**Directions:** The question has some words which have a group of common letters. Study the words and choose the correct option which means the same as the group of letters which is common.

## Equidistant, Equator, Equation, Equivalent

What does the common part "equ" mean?

ANS.- (B) "equ" is the root word that means "equal".

**Directions:** The question has some words which have a group of common letters. Study the words and choose the correct option which means the same as the group of letters which is common.

## Journal, Journey, Sojourn, Adjourn

What does the common part "journ" mean?

- (A) raise
  - (B) feel
  - (C) fire
  - (D) daily



ANS.- (B) "journ" is the root word that means "daily".



**Directions:** The question has some words which have a group of common letters. Study the words and choose the correct option which means the same as the group of letters which is common.

**Misunderstand, Misfit, Miscreant, Misadvise**

What does the common part "mis" mean?

- (A) fail
  - (B) pass
  - (C) promotion
  - (D) reappear



ANS.- (A) "mis" is the root word which means "fail".



**Directions:** The question has some words which have a group of common letters. Study the words and choose the correct option which means the same as the group of letters which is common.

## Confidence, Diffidence, Fidelity, Infidel

What does the common part "fid" mean?



ANS.- (C) "fid" is the root word which means "faith".

**Directions:** The question has some words which have a group of common letters. Study the words and choose the correct option which means the same as the group of letters which is common.

**Acrobat, Acrophobia, Acronym, Acropolis**

What does the common part "acro" mean?



ANS.- (B) "acro" is the root word that means "height".



**Directions:** The question has some words which have a group of common letters. Study the words and choose the correct option which means the same as the group of letters which is common.

## Biography, Biology, Biopsy, Antibiotic

What does the common part "bio" mean?



ANS.- (B) "bio" is the root word that means "living matter".



**Directions:** The question has some words which have a group of common letters. Study the words and choose the correct option which means the same as the group of letters which is common.

Dental, Dent, Dentate, Trident

What does the common part "dent" mean?

- (A) body
- (B) heart
- (C) tooth
- (D) bill



ANS.- (C) "dent" is the root word that means "tooth".



# Word Usage

---





**Directions:** In the question, the word at the top is used in different ways. Choose the option in which the usage of the word is INCORRECT or INAPPROPRIATE.

### ABANDONED

- (A) The crew abandoned the ship that was on the verge of sinking.
- (B) The match was abandoned due to heavy rain.
- (C) The student abandoned the class without reason.
- (D) Tina abandoned us throughout the party and kept company with the stranger.



ANS.- (D)

'Abandon' means 'to give up, desert - at a point of time, not in a period of time'. In sentence (4) the word "ignored" should replace "abandoned."



**Directions:** In the question, the word at the top is used in different ways. Choose the option in which the usage of the word is INCORRECT or INAPPROPRIATE.

### SCRATCH

- (A) As we are not experts, we need to start from the scratch.
- (B) There is a big scratch on the rear glass of my car.
- (C) The food I took last night caused scratches on my body.
- (D) The child lifted his shirt to scratch himself.



ANS.- (C)

Scratches are caused by outside force, **not** by food ingested. The appropriate word in (3) should have been 'itch or rashes.'



**Directions:** In the question, the word at the top is used in five different ways, numbered (1) to (5). Choose the option in which the usage of the words is INCORRECT or INAPPROPRIATE.

### INJURY

- (A) The storm injured the straw huts at the sea shore.
- (B) Minor head injuries should be taken seriously.
- (C) The driver rammed the bus in an electric pole and injured his right leg.
- (D) The soldier was injured in the gun-fight.



ANS.- (D)

Injury is accidental and not caused on purpose. The appropriate word in (5) is 'hurt' and not 'injured'.



**Directions:** In the question, the word at the top is used in five different ways, numbered (1) to (5). Choose the option in which the usage of the words is INCORRECT or INAPPROPRIATE.

## TRIGGER

- (A) You should not fiddle with the gun with a finger on the trigger.
- (B) The moment trigger is pulled, the gun goes off.
- (C) Some guns have feather-touch triggers.
- (D) Give me the trigger to find the answer.



ANS.- (D) Trigger is an impulse, not a hint. The appropriate word for (5) is `a clue'.



**Directions:** In the question, the word at the top is used in different ways. Choose the option in which the usage of the word is INCORRECT or INAPPROPRIATE.

### DILUTE

- (A) The purpose of the plan was diluted due to outside influence.
- (B) The scientist diluted sulphuric acid for the experiment.
- (C) Drop a disprin tablet into a glass of water, and it will dilute immediately.
- (D) The diluted solvent was the cause of impurity.



ANS.- (C)

The correct usage should be 'dissolve' and not 'dilute' in (3). A 'tablet' will dissolve or 'break up' in water.



**Directions:** In the question, the word at the top is used in different ways. Choose the option in which the usage of the word is INCORRECT or INAPPROPRIATE.

### EJECT

- (A) The pilot ejected immediately after the plane caught fire.
- (B) It is better you eject voluntarily before I throw you out.
- (C) Let us eject all evil thoughts from our mind.
- (D) When installation is complete, the machine will eject the CD.



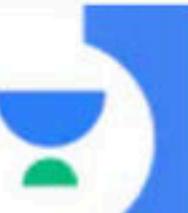
ANS.- (B) 'Eject' means throwing out and so, is a misfit, if used with 'voluntary'.



**Directions:** In the question, the word at the top is used in different ways. Choose the option in which the usage of the word is INCORRECT or INAPPROPRIATE.

### CRASH

- (A) In women's singles, former champion Garbine Muguruza crashed out of the tournament, losing to Danielle Collins.
- (B) Gate crashers had a field day.
- (C) Let us crash the dish and start making it again.
- (D) They are still trying to figure out what caused the fiery crash in Orlando.



ANS.- (C)

'Crash' means 'be heavily defeated in a sporting competition'.

It also means an accident, or with a sudden loud sound.

Gate crasher is a person who attends or enters a social function without an invitation.

'Crash' fits in all the sentences, except 3. It will be a misfit for leaving aside a dish.



**Directions:** In the question, the word at the top is used in different ways.  
Choose the option in which the usage of the word is INCORRECT or INAPPROPRIATE.

### SINK

- (A) The boy who was sinking, shouted for help, but nobody came to his rescue.
- (B) The shark sank its teeth into the warm flesh.
- (C) The boatman sank the spade into the ground.
- (D) The Himalayas have been sinking by almost an inch a year.



ANS.- (A) Living things drown. 'Drowning' should replace 'sinking' in (1).



**Directions:** In the question, the word at the top is used in five different ways, numbered (1) to (5). Choose the option in which the usage of the words is INCORRECT or INAPPROPRIATE.

## THROW

- (A) He threw up his hands in despair.
- (B) Do not throw the food in the bin, give it to the maid.
- (C) I was thrown off balance by the sheer audacity of the beggar.
- (D) The match was decided by the throw of a coin.



ANS.- (D) A coin is tossed. 'Toss' should replace 'throw'.



**Directions:** In the question, the word at the top is used in five different ways, numbered (1) to (5). Choose the option in which the usage of the words is INCORRECT or INAPPROPRIATE.

## CRUSH

- (A) Don't take it as a crushing load; you can possibly manage it.
- (B) Crush the onion into fine paste.
- (C) The crush of people stoned the shopping mall.
- (D) The clothes look crushed and soiled.



ANS.- (D) 'Creased' or 'crumpled' (not crushed).



**Directions:** In the question, the word at the top is used in different ways. Choose the option in which the usage of the word is INCORRECT or INAPPROPRIATE.

Either

- (A) Either Ram or Shyam is going to Mumbai.
- (B) Either has to take the responsibility.
- (C) "Mike, which would you prefer, tea or coffee?" "Either thanks. I've just had a coffee."
- (D) You can have either or both.



ANS.- (C)

Usage of the word in option 3 is incorrect. It should be replaced with 'neither' instead. In speaking, we can use 'neither' on its own in replies when we are referring to two things that have already been mentioned.



**Directions:** In the question, the word at the top is used in different ways. Choose the option in which the usage of the word is INCORRECT or INAPPROPRIATE.

### Notice

- (A) The notice was punched on to the display board of the college.
- (B) Adrenaline made her shake harder, and she prepared herself to fight, understanding the notice of her dead guards.
- (C) Sorry! I never noticed the carpet.
- (D) A copy of the notice was circulated in the school.



ANS.- (B)

Use of the word in option 2 is incorrect. It shall be replaced with 'warnings' instead.



**Directions:** In the question, the word at the top is used in different ways. Choose the option in which the usage of the word is INCORRECT or INAPPROPRIATE.

Suit

- (A) That train doesn't suit me; it shuttles out a little too early in the morning.
- (B) He always looked nice, but normally he would have worn a suit for the occasion.
- (C) Take off that black shirt; it doesn't suit you.
- (D) I have booked a suit for my family in Hotel Hilton in London.



ANS.- (D)

The correct usage in (4) is 'suite' which means group of connected rooms used as a unit.



**Directions:** In the question, the word at the top is used in different ways.  
Choose the option in which the usage of the word is INCORRECT or INAPPROPRIATE.

Round

- (A) The police fired seven rounds into the air to disperse the crowd.
- (B) Read round things that are beautiful and good.
- (C) This is our second round of discussions.
- (D) I came round twice but you were not at home.

ANS.- (B)

The word 'round' does not fit in sentence 2. It shall be replaced with 'about' to make the sentence correct.



**Directions:** In the question, the word at the top is used in five different ways, numbered (1) to (5). Choose the option in which the usage of the words is INCORRECT or INAPPROPRIATE.

## Work

- (A) All work no play makes jack a dull boy.
- (B) It is good to work with people who are honest.
- (C) The work of the spark plug is to switch on the engine.
- (D) My mechanic is an expert; the way he works is amazing



ANS.- (C)

The function of the spark plug. (The function of a component makes the machine work).