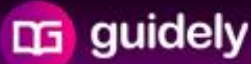


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General Awareness

1) Who was the president of INC in 1916?

- a) Annie Besant
- b) Ambica Charan Mazumdar
- c) Madan Mohan Malaviya
- d) Syed Hasan Imam

Answer: B

Ambica Charan Mazumdar was the president at INC's Lucknow session in 1916.

2) Kuna is the currency of which country?

- a) Chad
- b) Chile
- c) Croatia
- d) Comoros

Answer: C

The kuna is the currency of Croatia. It is in use since 1994 and is subdivided into 100 lipa.

3) Who gave the slogan of "Do or Die"?

- a) Gopal Krishna Gokhale
- b) Rash Behari Bose
- c) Mahatma Gandhi
- d) Womesh Chandra Banerjee

Answer: C

The slogan "do or die" is associated with Mahatma Gandhi. This slogan came into existence during the Quit India Movement initiated by Gandhiji.

4) Who coined the word geography?

- a) Eratosthenese
- b) Theophrastus
- c) Ernst Haeckel
- d) Aristotle

Answer: A

The term geography was first coined by Eratosthenese, a Greek scholar. The word has been derived from two roots from Greek language geo (earth) and graphos (description).

5) Who wrote the book 'Playing It my way'?

- a) Yuvraj Singh
- b) Rohit Sharma
- c) Kapil Dev
- d) Sachin Tendulkar

Answer: D

Playing It My Way is the autobiography of former Indian cricketer Sachin Tendulkar. It was launched on 5 November 2014 in Mumbai.

6) What is the full form of DISHA?

- a) District Infrastructure Scheme Advisory

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- b) Development Infrastructure Scheme Advisory
- c) Digital Infrastructure Scheme Advisory
- d) District Infrastructure Social Advisory

Answer: A

The full form of DISHA is District Infrastructure Scheme Advisory. The District Vigilance and Monitoring Committee is being restructured as District Infrastructure Scheme Advisory Committees (DISHA).

7) When was the first earth summit held?

- a) 1991
- b) 1995
- c) 1998
- d) 1992

Answer: D

The United Nations Conference on Environment and Development (UNCED), also known as the Rio de Janeiro Earth Summit and the Earth Summit was a major United Nations conference held in Rio de Janeiro in 1992.

8) Which of the following express has the longest train route in India?

- a) Himsagar Express
- b) Silchar Superfast Express
- c) Navyug Express
- d) Vivek Express

Answer: D

Vivek Express covers the longest train route in India. It originates in northern Assam and goes all the way

to the southern tip of India to Kanyakumari. It has the running time of 80 hours and 15 minutes and the distance covered is 4,233 kilometres.

9) What is the most popular festival in Nagaland?

- a) Pongal
- b) Losar
- c) Onam
- d) Hornbill festival

Answer: D

The Hornbill Festival is a celebration held every year from 1 to 10 December, in Nagaland, Northeast India. It is also called the 'Festival of Festivals'.

10) When was the president of India elected for the first time after independence?

- a) 1955
- b) 1951
- c) 1958
- d) 1952

Answer: D

The Election Commission of India held the first presidential elections of India on May 2, 1952. Dr. Rajendra Prasad won his first election and became the first President of India.

11) Who built the Red Fort?

- a) Maharaja Sawai Jai Singh II
- b) Edwin Lutyens
- c) Hyder Ali
- d) Ustad Ahmad Lahouri

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Answer: D

The Red Fort is a historic fort in the city of Delhi in India that served as the main residence of the Mughal Emperors. Its design is credited to architect Ustad Ahmad Lahori.

12) Who wrote the book "The Test of my life"?

- a) Nishant Jeet Arora
- b) Yuvraj Singh
- c) Sharda Ugra
- d) All of the above

Answer: D

Yuvraj Singh is the author of "The Test of My Life: From Cricket to Cancer and Back". The book has been co-authored by Sharda Ugra and Nishant Jeet Arora.

13) What is the color of Octopus's blood?

- a) Blue
- b) Red
- c) Green
- d) Yellow

Answer: A

The color of Octopus's blood is Blue. Hemocyanin absorbs all colours except blue which it reflects, making their blood appear blue.

14) When did Alberuni come to India?

- a) 1011
- b) 1017
- c) 1021

d) 1013

Answer: B

Alberuni also known as Abu Rayham Beruni was a persian scholar who came to India with Mahmud of Ghazni in 1017.

15) What is the sequence of the digestive system?

- a) Ingestion, Digestion, Absorption, Assimilation and Egestion
- b) Egestion, Absorption, Digestion, Assimilation and Ingestion
- c) Assimilation, Absorption, Ingestion, Digestion and Egestion
- d) Digestion, Ingestion, Assimilation, Egestion and Absorption

Answer: A

The sequence of the digestive system is Ingestion, Digestion, Absorption, Assimilation and Egestion.

16) What is the full-Form of COBOL?

- a) Common Business Object Language
- b) Common Beneficial Oriented Language
- c) Common Beneficial Object Language
- d) Common Business Oriented Language

Answer: D

COBOL stands for Common Business Oriented Language. COBOL is a compiled English-like computer programming language designed for business use. It is primarily used in business, finance, and administrative systems for companies and governments.

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17) The Champaran Satyagraha, the first Satyagraha movement happened in which year?

- a) 1915
- b) 1917
- c) 1911
- d) 1921

Answer: B

The Champaran Satyagraha of 1917 was the first Satyagraha movement inspired by Gandhiji and a major revolt in the Indian Independence Movement through which he entered into the Indian Politics.

18) Study of Birds is called?

- a) Odontology
- b) Paleontology
- c) Ornithology
- d) Lithology

Answer: C

Ornithology is a branch of zoology that concerns the "methodological study and consequent knowledge of birds with all that relates to them".

19) MGNREGA was started in which year?

- a) 2006
- b) 2000
- c) 1999
- d) 2003

Answer: A

Mahatma Gandhi Employment Guarantee Act 2005, is an Indian labour law and social security measure

that aims to guarantee the 'right to work'. This act was passed in September 2005 under the UPA government of Prime Minister Dr. Manmohan Singh. It was started in 2006.

20) Who among the following has the power to summon and dissolve the House of Parliament?

- a) Prime Minister
- b) Speaker of Lok Sabha
- c) President
- d) Union Council of Ministers

Answer: C

The Parliament of India is the supreme legislative body of the Republic of India. The President in his role as head of legislature has full powers to summon and prorogue either house of Parliament or to dissolve Lok Sabha. The president can exercise these powers only upon the advice of the Prime Minister and his Union Council of Ministers.

21) Which one of the following is the most common motif of the Indus Seals?

- a) Bull
- b) Rhinoceros
- c) Elephant
- d) Unicorn

Answer: D

The unicorn is the most common motif on Indus seals and appears to represent a mythical animal that Greek and Roman sources trace back to the Indian subcontinent.

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22) Which of the following Railways line runs parallel to the Arabian Sea?

- a) Central Railway
- b) Konkan Railway
- c) Southern Railway
- d) Western Railway

Answer: B

The Konkan Railways passes through 3 states of India – Goa, Maharashtra and Karnataka. It runs along the Indian west coast parallel to Arabian Sea and Western Ghats.

23) Which one of the following is not connected by golden triangle tourism?

- a) Lucknow
- b) Agra
- c) Delhi
- d) Jaipur

Answer: A

India's golden triangle is a tourist circuit which connects the national capital Delhi, Agra and Jaipur. The Golden Triangle is so called because of the triangular shape formed by the locations of New Delhi, Agra and Rajasthan on a map.

24) Beti bachao and Beti padhao campaign comes under which ministry?

- a) Ministry of Home Affairs
- b) Ministry of Tribal affairs
- c) Ministry of Labour and Employment

d) Ministry of Women and Child Development

Answer: D

The Beti Bachao, Beti Padhao scheme was launched on 22 January 2015 by PM Narendra Modi. It aims to address the issue of the declining child sex ratio image (CSR) and is a national initiative jointly run by the Ministry of Women and Child Development, the Ministry of Health and Family Welfare and the Ministry of Human Resource Development.

25) Pradhan Mantri Jan Dhan Yojana (PMJDY) was launched by PM Narendra Modi in which year?

- a) 2015
- b) 2017
- c) 2014
- d) 2019

Answer: C

Pradhan Mantri Jan Dhan Yojana (PMJDY) is the biggest financial inclusion initiative in the world which was announced by the Hon'ble Prime Minister Shri Narendra Modi on 15th August 2014.

26) Goa Liberation Day is observed on_____.

- a) 11th May
- b) 19th December
- c) 15th October
- d) 12th January

Answer: B

Goa Liberation Day is observed on December 19 every year in Goa, India. The Goa Liberation Day is

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celebrated in commemoration of the Indian armed forces freeing Goa from Portuguese rule.

27) Which is the highest peak in the Western Ghats?

- a) Jongsong Peak
- b) Kanchenjunga
- c) Nanda Devi
- d) Anamudi

Answer: D

Anamudi is a mountain located in the Indian state of Kerala. It is the highest peak in the Western Ghats and South India.

28) A condition in which close objects appear clearly, but far ones don't is_____.

- a) Myopia
- b) Cataract
- c) Hypermetropia
- d) Presbyopia

Answer: A

Myopia or short-sightedness is a vision defect in which a person can see nearby objects clearly but cannot see the distant objects.

29) Which state has largest railway network in India?

- a) Rajasthan
- b) Madhya Pradesh
- c) Uttar Pradesh
- d) Bihar

Answer: C

Uttar Pradesh has largest railway network in India.

There are 1134 railway stations in Uttar Pradesh.

30) Which one of the following is not an international organisation?

- a) International Monetary Fund (IMF)
- b) International Telecommunication Union (ITU)
- c) Organization for Economic Cooperation and Development (OECD)
- d) Defence Research and Development Organisation (DRDO)

Answer: D

The Defence Research and Development Organisation is an agency under the Department of Defence Research and Development in Ministry of Defence of the Government of India, charged with the military's research and development, headquartered in Delhi, India.

31) What is Python?

- a) web-browser
- b) operating system
- c) programming language
- d) None of these

Answer: C

Python is an interpreted, high-level and general-purpose programming language.

32) Trackball is which of the following devices?

- a) Touchpad
- b) Output device

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- c) Input device
- d) Barcode reader

Answer: C

A trackball is an input device used to enter motion data into computers or other electronic devices. It consists of a ball held by a socket containing sensors to detect a rotation of the ball about two axes like an upside-down mouse with an exposed protruding ball.

33) Name the bird which fly backwards?

- a) Dove
- b) Sparrow
- c) Goose
- d) Humming Bird

Answer: D

Hummingbirds are fascinating and impressive birds. These are the only birds that can fly backwards and upside down.

34) Which country was second in petroleum production as per 2017-18?

- a) Saudi Arabia
- b) Russia
- c) United States
- d) India

Answer: A

Saudi Arabia possesses around 17 per cent of the world's proven petroleum reserves. It was second in petroleum production as per 2017-18.

35) The United Nations Environment Programme (UNEP) was established in which year?

- a) 1988
- b) 1975
- c) 1977
- d) 1972

Answer: D

The United Nations Environment Programme is responsible for coordinating responses to environmental issues within the United Nations system. It was established in June 1972.

36) First metro train was started in_____?

- a) Kolkata
- b) New-Delhi
- c) Mumbai
- d) Bengaluru

Answer: A

The Kolkata Metro is the first planned and operational rapid transit system in India. It was initially planned in the 1920s, but construction started in 1970s.

37) Which railway station has the world's longest railway junction?

- a) Pir Panjal Railway station
- b) Howrah Railway Station
- c) Gorakhpur Railway Station
- d) Ghum Railway Station

Answer: C

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The Gorakhpur Railway Station is located in the city of Gorakhpur in the Indian state of Uttar Pradesh. It has the world's longest railway platform. Gorakhpur became the world's longest railway platform, after inauguration of the remodelled Gorakhpur Yard, with a stretch of around 1.35 kilometres.

38) Who was the first woman judge of the Supreme court?

- a) Fathima Beevi
- b) Sujata Manohar
- c) Ruma Pal
- d) Gyan Sudha Misra

Answer: A

The first woman judge of the apex court was Justice Fathima Beevi who was appointed in 1989, 39 years after the Supreme Court was set up in 1950.

39) Ghoomar is a dance form of_____.

- a) Rajasthan
- b) Madhya Pradesh
- c) Tamil Nadu
- d) Jharkhand

Answer: A

Ghoomar is a traditional folk dance of Rajasthan. It was Bhil tribe who performed it to worship Goddess Sarasvati.

40) Who among the following was the last governor-general and the only Indian governor-general?

- a) Mohammad Ali Jinnah

- b) Lord Irwin
- c) Aurobindo Ghosh
- d) C. Rajagopalachari

Answer: D

Upon independence in August 1947, the title of viceroy was abolished. The representative of the British Sovereign became known once again as the governor-general. C. Rajagopalachari became the only Indian governor-general.

Logical Reasoning

1. Given below are four jumbled sentences. Out of the given options pick the one that gives their correct order.

- 1. Rome
- A. When we wish to achieve something.
- B. It is the same with any great achievement.
- C. It took several years to build Rome and bring it to the state of glory.
- D. The greatest city of ancient world was not built in a short time.

6. We cannot expect success in a moment.

- a) CABD
- b) DCBA
- c) DBCA
- d) CBAD

Answer: B

- 1. Rome
- D. The greatest city of ancient world was not built in a short time.

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C. It took several years to build Rome and bring it to the state of glory.

B. It is the same with any great achievement.

A. When we wish to achieve something.

6. We cannot expect success in a moment.

2. Select the number that can replace the question mark (?) in the following series.

8, 11, 15, 23, 40, 73, ?

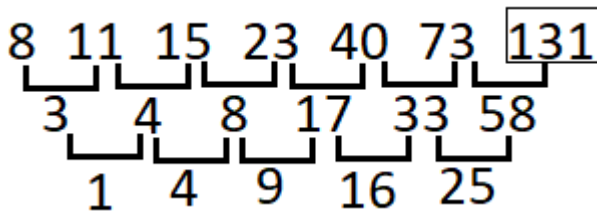
a) 113

b) 122

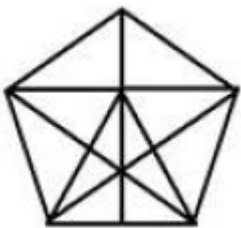
c) 97

d) 131

Answer: D



3. How many triangles are there in the given figure?



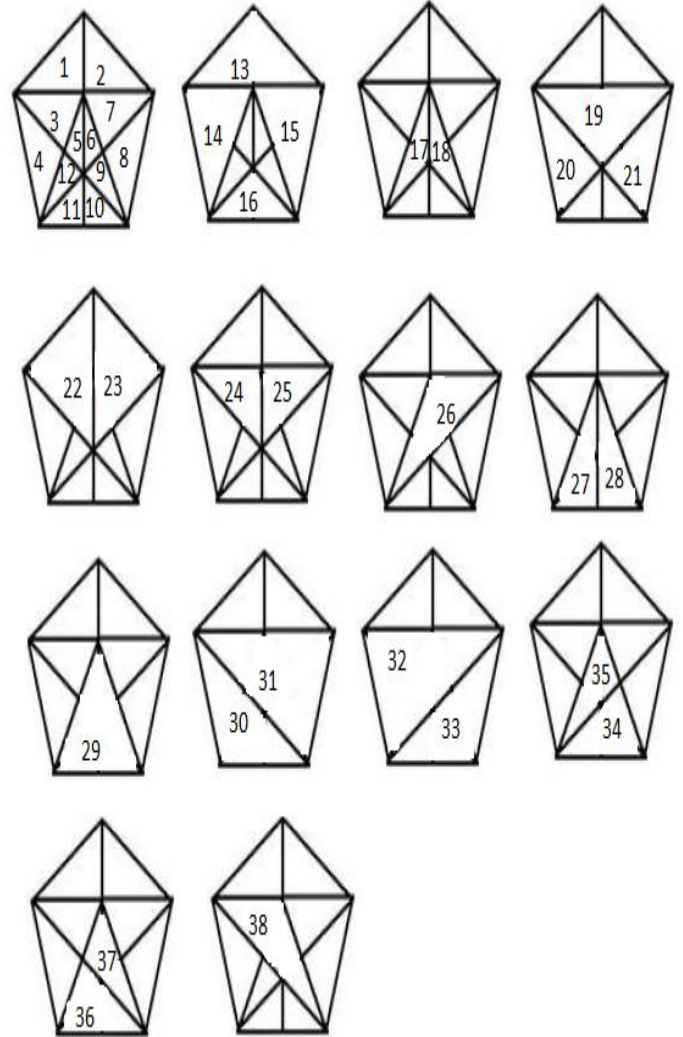
a) 38

b) 41

c) 18

d) 27

Answer: A



4. Select the correct alternative to indicate the arrangement of the following words in a logical and meaningful order.

1. Calcium

2. Argon

3. Magnesium

4. Lithium

5. Helium

a) 5, 2, 3, 4, 1

b) 5, 3, 4, 2, 1

c) 5, 4, 2, 3, 1

d) 5, 4, 3, 2, 1

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Answer: D

Atomic No.	2	3	12	18	20
Element	Helium	Lithium	Magnesium	Argon	Calcium

- 5. Helium
- 4. Lithium
- 3. Magnesium
- 2. Argon
- 1. Calcium

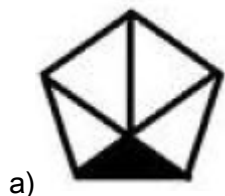
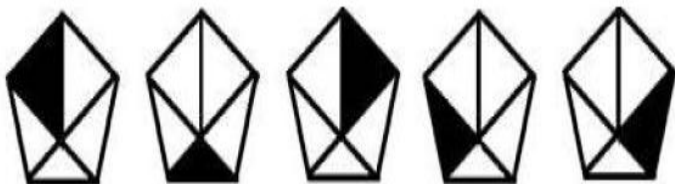
5. Four words have been given out of which three are alike in some manner and one is different. Select the odd one.

- a) Oyster
- b) Shark
- c) Cod
- d) Salmon

Answer: A

All options except 'oyster' are name of fishes, while 'oyster' is a mollusc.

6. Select the figure that will come next in the following figure series.



b)

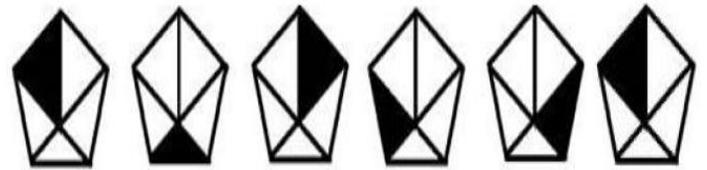


c)



d)

Answer: C



7. Which two signs should be interchanged in the following equation to make it correct?

$$6 + 7 \times 8 - 21 \div 7 = 47$$

- a) + and ×
- b) + and -
- c) ÷ and -
- d) ÷ and ×

Answer: A

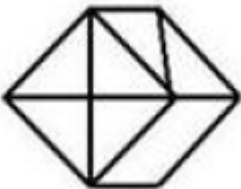
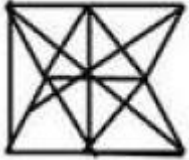
$$6 + 7 \times 8 - 21 \div 7 = 47$$

- a) + and ×

$$\begin{aligned}
 &6 \times 7 + 8 - 21 \div 7 \\
 &= 42 + 8 - 3 \\
 &= 50 - 3 \\
 &= 47
 \end{aligned}$$

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8. Select the option in which the given figure is embedded when rotation is not allowed.



Answer: D



9. Select the word-pair in which the two words are related in the same way as are the words in the following word-pair.

Fish : Shoal

- a) Town : City
- b) Sheep : Flock

- c) Human : Race
- d) Whale : Mammal

Answer: B

When fish, shrimp or other aquatic creatures swim together in a loose cluster, this is typically called a shoal.

Similarly,

A group of sheep is called a flock.

10. Three of the four words are related in a certain way and one is different. Select the odd one out.

- a) Bajra
- b) Tur
- c) Wheat
- d) Jowar

Answer: C

Wheat is a Rabi crop.

Bajra, Tur and Jowar are Kharif crops.

11. Which two numbers should be interchanged to make the following equation correct?

$$3 \times 9 + 5 - 18 \div 7 = 24$$

- a) 3 and 5
- b) 9 and 7
- c) 5 and 7
- d) 18 and 9

Answer: B

$$3 \times 9 + 5 - 18 \div 7 = 24$$

- b) 9 and 7

$$3 \times 7 + 5 - 18 \div 9 = 21 + 5 - 2$$

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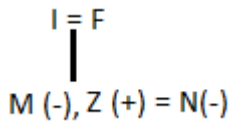
= 26 - 2

= 24

12. Z is husband of N who is sister-in-law of M. M is daughter of I and F. N is daughter-in-law of F. How is Z related to F?

- a) Son-in-law
- b) Brother
- c) Father
- d) Son

Answer: D

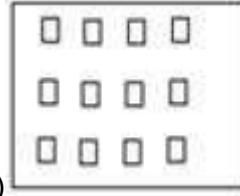


Z is son of F.

13. A paper is folded and cut as shown below. How will the paper appear when unfolded?



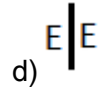
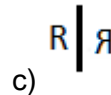
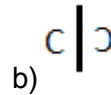
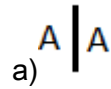
- a)
- b)
- c)



d)

Answer: C

14. Choose the odd one out.



Answer: D

All options except 'D' are mirror images.

15. If L represents '+', M represents '-', N represents 'x' and P represents '÷'. Find out the answer for the equation given below.

$$22 N 16 L 12 P 4 M 20$$

- a) 356
- b) 336
- c) 352
- d) 332

Answer: B

L	M	N	P
+	-	x	÷

$$\begin{aligned}
 &22 \times 16 + 12 \div 4 - 20 \\
 &= 352 + 4 - 20 \\
 &= 356 - 20
 \end{aligned}$$

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= 336

16. A statement followed by some concepts are given below.

Statement:

It is important for human health to conserve the main elements of our environment.

Concepts:

I. It is fundamental for our health to breathe clean air, access to enough clean drinking water, and safety against harmful environmental influences.

II. Air pollution has emerged as a big problem due to extensive use of biofuel for domestic and industrial use leading to smoke and oxide of sulphur.

Find which of the concept is inherent in the statement.

- a) Only I is inherent.
- b) Only II is inherent.
- c) Both I and II are inherent.
- d) Both I and II are not inherent.

Answer: A

Only I is inherent.

17. Read the statements and conclusions below.

Statements:

Some battery is not cell.

All remotes are battery.

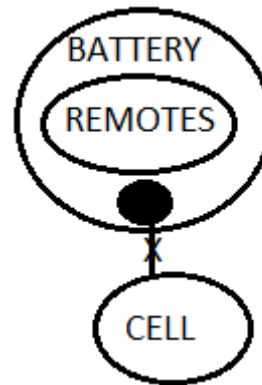
Conclusions:

- I. Some cell is battery.
- II. Some cell is not remotes.
- III. Some remotes are battery.

Which conclusion(s) follow (s) the given statement?

- a) Only conclusion I follows.
- b) Only conclusion III follows.
- c) All the conclusions follow.
- d) Only conclusion II follows.

Answer: B



- I. Some cell is battery. → False
 - II. Some cell is not remotes. → False
 - III. Some remotes are battery. → True
- Only conclusion III follows.

18. Two positions of the same cube are shown below. What will come opposite to the face containing '1'?



- a) 6
- b) 3
- c) 5
- d) 4

Answer: D

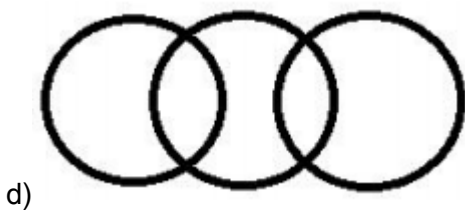
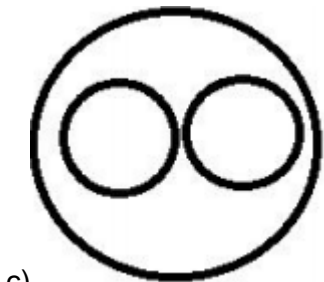
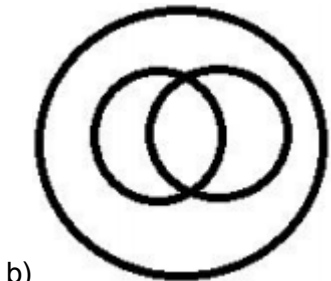
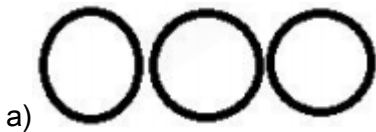
As '2' is common, so keeping it constant and then rotating in clockwise direction, we get the opposite faces:

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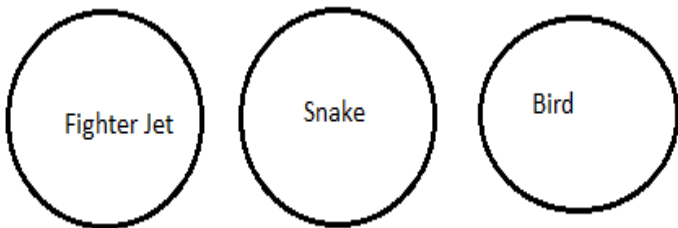
2	3	6
2	4	1

19. Identify the diagram that best represents the relationship among the given classes.

Fighter Jet, Snake, Bird



Answer: A



20. Study the given pattern carefully and select the number that can replace '?' in it.

L	B	N
B	G	I
H	?	P

- a) J
- b) H
- c) K
- d) M

Answer: B

$$L + B = N$$

$$B + G = I$$

Similarly,

$$H + H = P$$

21. If ANGEL is coded as 1OH2M, then how is RUPEE coded in that language?

- a) SQ422
- b) SV422
- c) S4Q22
- d) S4V22

Answer: C

(Vowels) A = 1, E = 2, I = 3, O = 4, U = 5

$$A = 1$$

$$N + 1 = O$$

$$G + 1 = H$$

$$E = 2$$

$$L + 1 = M$$

Similarly,

$$R + 1 = S$$

$$U = 4$$

$$P + 1 = Q$$

$$E = 2$$

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E = 2

22. Select the wrong term in the given series.

4, 8, 13, 19, 26, 34, 43, 53, 65

- a) 34
- b) 53
- c) 65
- d) 13

Answer: C

$4 + 4 = 8$

$8 + 5 = 13$

$13 + 6 = 19$

$19 + 7 = 26$

$26 + 8 = 34$

$34 + 9 = 43$

$43 + 10 = 53$

$53 + 11 = 64 \neq 65$

65 is the wrong term in the series.

23. If 'MISTAKE' is coded as *^\$(#@& and 'NAKED' is coded as +#@&?, how is 'KIND' coded?

- a) @^+\$
- b) \$+^\$
- c) @+^?
- d) @^+?

Answer: D

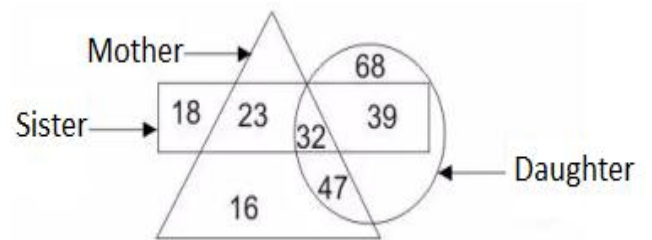
M	I	S	T	A	K	E
*	^	\$	(#	@	&

N	A	K	E	D
+	#	@	&	?

So,

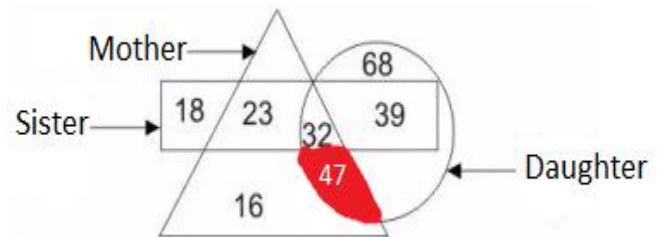
K	I	N	D
@	^	+	?

24. In the given figure, how many daughters are mother but not sister?



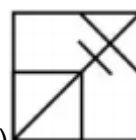
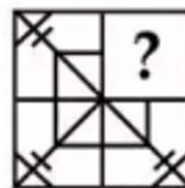
- a) 32
- b) 47
- c) 79
- d) 23

Answer: B



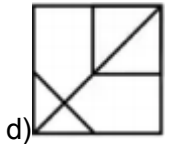
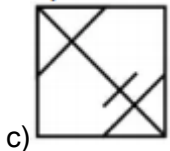
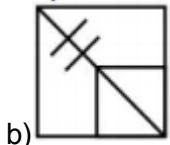
47 daughters are mother but not sister.

25. Which answer figure will complete the pattern in the question figure?

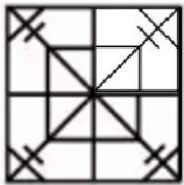


a)

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Answer: A



26. Which letter cluster will replace the '?' in the following series.

MAN, LZM, KYL, JXK, IWJ, ?

- a) HIU
- b) HUI
- c) HVI
- d) HIV

Answer: C

$M - 1 = L$; $L - 1 = K$; $K - 1 = J$; $J - 1 = I$; $I - 1 = H$

$A - 1 = Z$; $Z - 1 = Y$; $Y - 1 = X$; $X - 1 = W$; $W - 1 = V$

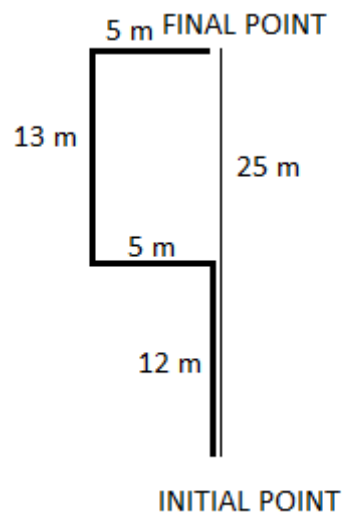
$N - 1 = M$; $M - 1 = L$; $L - 1 = K$; $K - 1 = J$; $J - 1 = I$

27. Arpita's house faces north. She leaves from her home and after covering a distance of 12m, she turns to her left and covers another 5m. Then she turns to her right and covers another 13m. Again, she turns to her right and covers a distance of 5m.

Find the distance between her initial and final position.

- a) 1 m
- b) 13 m
- c) 25 m
- d) 27 m

Answer: C



28. Select the option in which the words share the same relationship as that shared by the given pair of words.

Brave : Coward :: Boring : ?

- a) Tedious
- b) Interesting
- c) Fluctuating
- d) Unrelieved

Answer: B

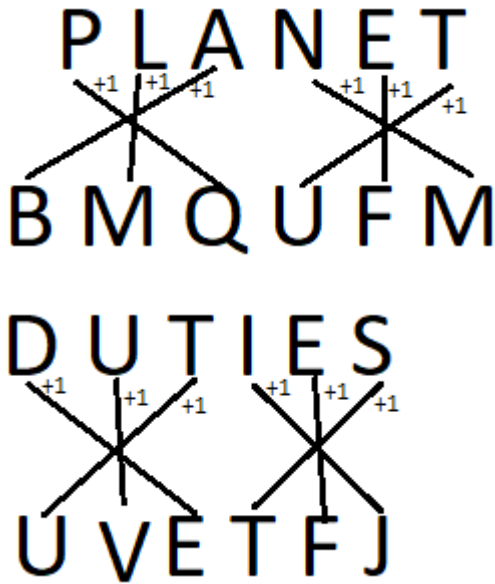
Words are antonyms of each other.

29. If PLANET is written as BMQUFM, then how is DUTIES written as in that code language?

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- a) UVTEFJ
- b) UEVTFJ
- c) UVETFJ
- d) UVEFTJ

Answer: C



30. Consider the statement given below and decide which of the following presuppositions s inherent in it.

Statement:

These days Doctors advice the consumption of rice in the dinner.

Presuppositions:

- I. Late night dinner produces toxin because the food remains undigested for a long time.
 - II. Rice digests quickly.
- a) Only I is inherent.
 - b) Only II is inherent.
 - c) Both I and II are inherent.
 - d) Neither I nor II is inherent.

Answer: B

Only II is inherent.

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Mathematics

1. Which one is largest $7/19$, $8/26$, $7/13$ and $6/15$?

- a) $7/19$
- b) $8/26$
- c) $7/13$
- d) $6/15$

Answer: C

$7/19$, $8/26$, $7/13$ and $6/15$

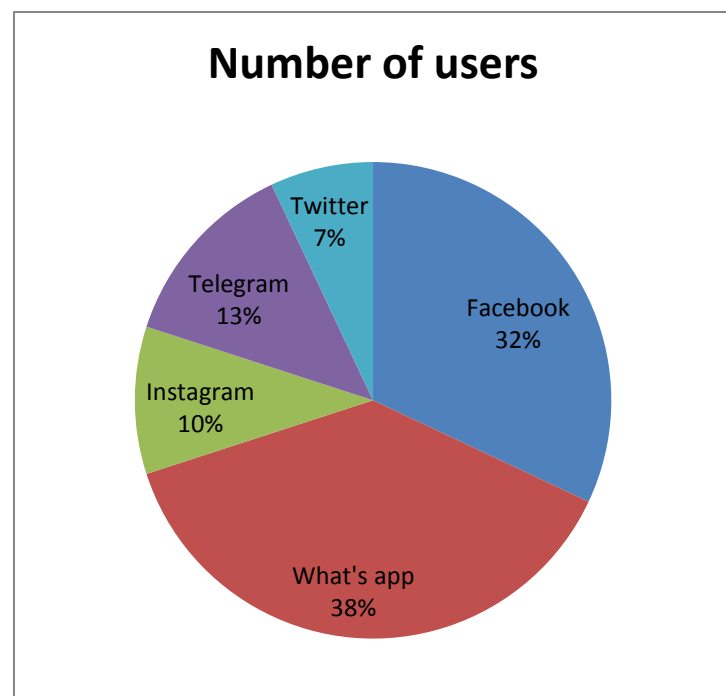
If we take difference $19 - 7 = 12$, $26 - 8 = 18$, $13 - 7 = 6$, $15 - 6 = 9$

Now we take LCM of $(18, 12, 9, 6) = 36$

It means number comes to be 21, 16, 42 and 24

So 42 is largest it means $7/13$ fraction is largest among other numbers.

2. Number of followers of different social media is given in percentage form and total followers are 40 crores. Read the given Pie-chart and answer the question below.



How many followers are there on facebook?

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- a) 12.8 crore
- b) 4 crore
- c) 6.4 crore
- d) 20.4 crore

Answer: A

Number of followers on Facebook = $\frac{32}{100} \times 40$
crore = 12.8 crore

3. If $a^2 + b^2 = 8$ and $ab = 4$, then find the value of $a +$

$\frac{1}{a}$

- a) 4
- b) 2
- c) 5
- d) $\frac{5}{2}$

Answer: D

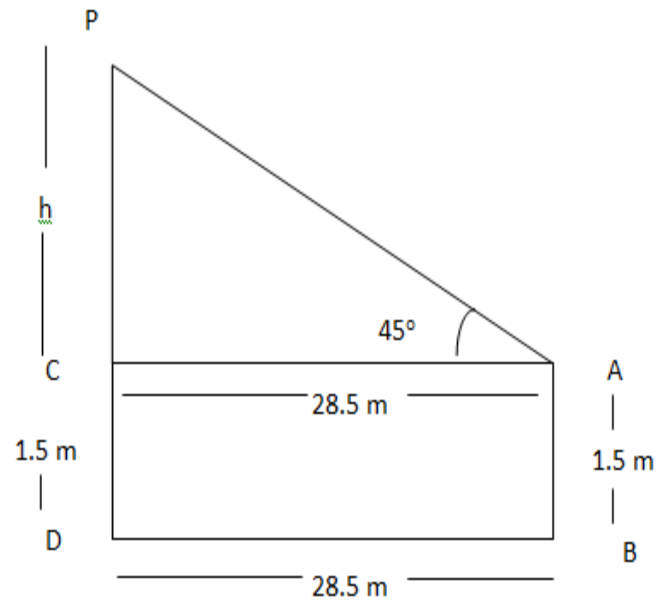
$a^2 + b^2 = 8$ and $ab = 4$, it means $a = b = 2$

So, $a + \frac{1}{a} = 2 + \frac{1}{2} = \frac{5}{2}$

4. A man of height 1.5 m sees a minaret 28.5 m away from him and the top of minaret makes 45° of elevation angle with his eyes. Find the total height of the minaret.

- a) 27 m
- b) 30 m
- c) 28.5 m
- d) 1.5 m

Answer: B



In, $\triangle PCA$

$$\tan 45^\circ = \frac{h}{28.5}$$

$$\tan 45^\circ = \frac{PC}{CA}$$

$$1 = \frac{h}{28.5}$$

$$h = 28.5 \text{ m}$$

Total height of the minaret = $28.5 + 1.5 = 30 \text{ m}$

5. A principal sum of Rs. 18,000 was lent at the rate of 4% for 1 year. Find the compound interest accumulated when compounded half - yearly.

- a) Rs. 722.7
- b) Rs. 720
- c) Rs. 727.2
- d) Rs. 727

Answer: C

Compound half - yearly means

Principal = Rs. 18,000, Rate = 2%, Time = 2 year

$$CI = P [(1 + \frac{R}{100})^n] - P$$

$$= 18,000[(1 + \{\frac{2}{100}\}^2)] - 18,000$$

$$= 18,000[(1 + \{\frac{1}{50}\}^2)] - 18,000$$

$$= 18,000[\frac{51}{50}]^2 - 18,000$$

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$$= 18,000[2601/2500] - 18,000$$

$$= 18,000 \times 101/2500$$

$$= \text{Rs. } 727.2$$

6. On a certain sum the simple interest after 15 years becomes $3/4^{\text{th}}$ of the actual sum. Find the rate of interest.

- a) 10%
- b) 5%
- c) 2.5%
- d) 8%

Answer: B

$$R\% = (SI \times 100) / (P \times T) = 3/4P \times 100 / (P \times 15) = 5\%$$

7. If $a \cos A - b \sin B = c$, then find the value of $a \sin A + b \cos B$.

- a) $\sqrt{a^2 + b^2 - c^2}$
- b) $\sqrt{a^2 + b^2 + c^2}$
- c) $\sqrt{a^2 - b^2 - c^2}$
- d) $\sqrt{a^2 - b^2 + c^2}$

Answer: A

$$a \cos \theta - b \sin \theta = x$$

$$\text{Also } b \sin \theta - a \cos \theta = y$$

$$\text{Then, } a^2 + b^2 = x^2 + y^2$$

$$a \cos A - b \sin B = c = y$$

$$\text{Let, } a \sin A + b \cos B = x$$

$$\text{So, } a^2 + b^2 = x^2 + c^2$$

$$x^2 = a^2 + b^2 - c^2$$

$$x = \sqrt{a^2 + b^2 - c^2}$$

$$a \sin A + b \cos B = \sqrt{a^2 + b^2 - c^2}$$

8. Find the least number which gives 3 as remainder when divided by 12, 25 and 30.

- a) 33

- b) 330

- c) 303

- d) 300

Answer: C

$$\text{LCM } (12, 25, 30) + 3$$

$$= 300 + 3 = 303$$

The least number is 303.

9. Solve: $8 + (1/2 + 1/4) \times 16$

- a) 12
- b) 18
- c) 10
- d) 20

Answer: D

$$8 + (1/2 + 1/4) \times 16$$

$$= 8 + (2 + 1/4) \times 16$$

$$= 8 + 3/4 \times 16$$

$$= 8 + 3 \times 4$$

$$= 8 + 12$$

$$= 20$$

10. A person shares a movie of 1.75 GB with his friend. If the speed of data transfer is 2MB/sec, then how much time will be required to transfer the whole movie?

- a) 896 sec
- b) 889 sec
- c) 869 sec
- d) 896 sec

Answer: D

$$\text{Data} \Rightarrow 1.75 \text{ GB} = 1792 \text{ MB}$$

$$\text{Speed} = 2 \text{ mb/sec}$$

$$\text{Time} = 1792 / 2 = 896 \text{ sec}$$

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11. Simplify: $\sqrt{\frac{1 + \cos 2A}{1 - \cos 2A}}$

- a) cosec A
- b) sec A
- c) cot A
- d) tan A

Answer: C

$$\begin{aligned} & \sqrt{\frac{1 + \cos 2A}{1 - \cos 2A}} \\ &= \sqrt{\frac{1 + 2\cos^2 A - 1}{1 - 1 + 2\sin^2 A}} \\ &= \sqrt{\frac{2\cos^2 A}{2\sin^2 A}} \\ &= \frac{\sqrt{\cos^2 A}}{\sqrt{\sin^2 A}} \\ &= \frac{\cos A}{\sin A} \\ &= \cot A \end{aligned}$$

12. If A can finish a work in 15 days and B can finish the same work in 10 days, then how many days both A and B can finish the work together?

- a) 6 days
- b) 12 days
- c) 30 days
- d) 5 days

Answer: A

A's one day work = $\frac{1}{15}$

B's one day work = $\frac{1}{10}$

(A + B)'s one day work = $\frac{1}{15} + \frac{1}{10} = \frac{2 + 3}{30} = \frac{5}{30} = \frac{1}{6}$

No. of days (A + B) can finish the work is 6 days.

13. A lighthouse of height 81 m is standing between the two boats. If the angles of elevation from the boats are 45° and 60° , then find the distance between the boats.

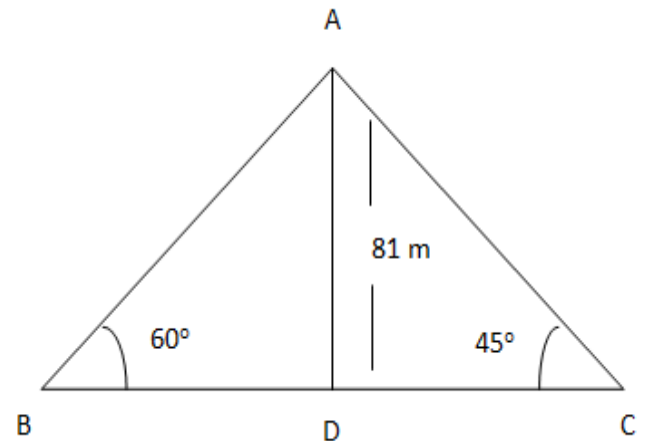
- a) $9(3 + \sqrt{3})$

- b) $27(3 + \sqrt{3})$

- c) $27(3 - \sqrt{3})$

- d) $9(3 - \sqrt{3})$

Answer: B



$\tan 60^\circ = \frac{AD}{BD}$

$\sqrt{3} = \frac{81}{BD}$

$BD = \frac{81}{\sqrt{3}}$

$\tan 45^\circ = \frac{AD}{CD}$

$1 = \frac{AD}{CD}$

$AD = CD = 81$

Total distance = $BD + CD$

$= \frac{81}{\sqrt{3}} + 81$

$= 81(\frac{1}{\sqrt{3}} + 1)$

$= 81(\frac{\sqrt{3} + 1}{\sqrt{3}})$

$= 81(\frac{\sqrt{3} + 1}{\sqrt{3}}) \times \frac{\sqrt{3}}{\sqrt{3}}$

$= 81(3 + \sqrt{3})/3$

$= 27(3 + \sqrt{3})$

14. A train can covers 545 km in 5 hours, then find the distance covered by the train in 45 minutes.

- a) 87 km

- b) 82 km

- c) 81.75 km

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d) 75 km

Answer: C

Distance = 545 km

Time = 5 hours

Speed = Distance/Time

Speed = 109 kmph

Time = 45 min

Distance = Speed * time

$\Rightarrow 109 * 45/60 = 81.75$

15. Find the volume of the cylinder whose radius is 5 cm and height is 172 cm.

- a) 13512 cm²
- b) 1351.428 cm²
- c) 135142.8 cm²
- d) 13514.28 cm²

Answer: D

Volume of the cylinder = $\pi * r^2 * h$

$= 22/7 * 5^2 * 172$

$= 94600/7$

$= 13514.28 \text{ cm}^2$

16. If $x^2 + 1 = 2x$, then find the value of $x - 1/x$.

- a) -1
- b) 0
- c) 1
- d) 2

Answer: B

$x^2 + 1 = 2x$

$x^2 + 1 - 2x = 0$

$(x - 1)^2 = 0$

$x = 1$

it means $1/x = 1$

$x - 1/x = 1 - 1 = 0$

17. If $\sqrt{45} + \sqrt{125} = 17.88$, then find the value of $\sqrt{180} + \sqrt{80}$.

- a) 21
- b) 21.36
- c) 22.35
- d) 22

Answer: C

$\sqrt{45} + \sqrt{125} = 17.88$

$\sqrt{9} \times 5 + \sqrt{5} \times 5 \times 5 = 17.88$

$3\sqrt{5} + 5\sqrt{5} = 17.88$

$8\sqrt{5} = 17.88$

$\sqrt{5} = 17.88/8$

$\sqrt{5} = 2.235$

Then, $\sqrt{180} + \sqrt{80}$

$= \sqrt{2} \times 2 \times 9 \times 5 + \sqrt{2} \times 2 \times 2 \times 2 \times 5$

$= 6\sqrt{5} + 4\sqrt{5}$

$= 10\sqrt{5}$

$= 10 \times 2.235$

$= 22.35$

18. If $r \sin \theta = 7/2$, $r \cos \theta = 7\sqrt{3}/2$, then find the value of r.

- a) ± 3
- b) ± 2
- c) ± 6
- d) ± 7

Answer: D

$r \sin \theta = 7/2 \dots (i)$

On squaring both the sides of equ (i) we get,

$r^2 \sin^2 \theta = (7/2)^2$

$r^2 \sin^2 \theta = 49/4 \dots (ii)$

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Also, $r \cos \theta = 7\sqrt{3}/2 \dots (iii)$

On squaring both the sides of equ (iii) we get,

$$r^2 \cos^2 \theta = (7\sqrt{3}/2)^2$$

$$r^2 \cos^2 \theta = 49 \times 3/4$$

$$r^2 \cos^2 \theta = 147/4 \dots (iv)$$

On adding equ (iii) and (iv) we get,

$$r^2 \sin^2 \theta + r^2 \cos^2 \theta = 49/4 + 147/4$$

$$r^2 \sin^2 \theta + r^2 \cos^2 \theta = 196/4$$

$$r^2 (\sin^2 \theta + \cos^2 \theta) = 196/4$$

$$r^2 \times 1 = 196/4$$

$$r^2 = 196/4$$

$$r = \sqrt{196/4}$$

$$r = 14/2$$

$$r = \pm 7$$

19. If $\tan \theta = 8/15$, then find the value of $\sin \theta + \cos \theta$.

a) 23/17

b) 8/17

c) 15/17

d) 7/17

Answer: A

$\tan \theta = 8/15 = \text{Perpendicular/Base}$

By Using Pythagoras Theorem,

$$\text{Hypotenuse}^2 = \text{Perpendicular}^2 + \text{Base}^2$$

$$\text{Hypotenuse}^2 = 8^2 + 15^2$$

$$\text{Hypotenuse}^2 = 64 + 225$$

$$\text{Hypotenuse}^2 = 289$$

$$\text{Hypotenuse} = \sqrt{289}$$

$$\text{Hypotenuse} = 17$$

$$\sin \theta = \text{Perpendicular/ Hypotenuse} = 8/17$$

$$\cos \theta = \text{Base/ Hypotenuse} = 15/17$$

$$\sin \theta + \cos \theta = 8/17 + 15/17 = 23/17$$

20. If the difference between compound interest and simple interest on Rs. 15,000 for 2 years is Rs. 24, then find the rate of interest.

a) 8 %

b) 5%

c) 4 %

d) 10 %

Answer: C

$$CI - SI \text{ for 2 years} = PR^2 / (100)^2$$

$$24 = 15,000 \times R^2 / (100)^2$$

$$24 = 15,000 \times R^2 / 10000$$

$$24 = 15 \times R^2 / 10$$

$$24 \times 10 / 15 = R^2$$

$$16 = R^2$$

$$R = 4\%$$

21. In ΔPQR , the side QR is extended to S such that $RS = PR$. If $\angle QPS = 110^\circ$ and $\angle PRQ = 70^\circ$, then find the value of $\angle PQR$.

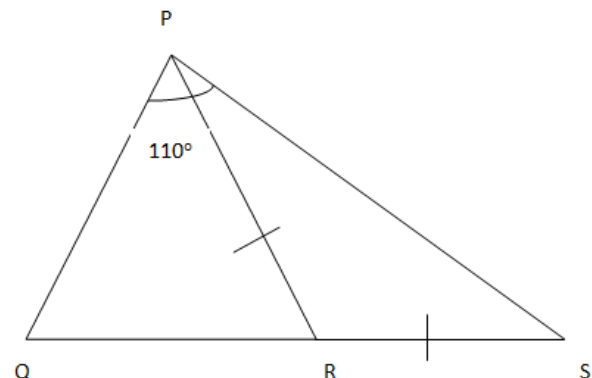
a) 45°

b) 40°

c) 50°

d) 35°

Answer: D



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Given, $\angle PRQ = 70^\circ$, then, $\angle PRS = 110^\circ$

It means, $\angle RPS = \angle RSP = 35^\circ$

$\angle PRQ = 110^\circ - 35^\circ = 75^\circ$

$\angle PQR = 180^\circ - 75^\circ - 70^\circ = 35^\circ$

22. The curved surface of a cylinder is 264 square meters, if its volume is 924 cubic meters, then the ratio of diameter to height of the cylinder will be -

- a) $7/3$ m
- b) $7/4$ m
- c) $7/6$ m
- d) $7/12$ m

Answer: A

Curved Surface of cylinder = 264

$$2\pi rh = 264 \dots (i)$$

Volume of cylinder = 924

$$\pi r^2 h = 924 \dots (ii)$$

on dividing equ (i) by equ (ii) we get,

$$\frac{2\pi rh}{\pi r^2 h} = \frac{264}{924}$$

$$\frac{2}{r} = \frac{264}{924}$$

$$r = 7 \text{ m}$$

Then, $2\pi rh = 264$

$$2 \times \frac{22}{7} \times 7 \times h = 264$$

$$h = 6 \text{ m}$$

$$\frac{d}{h} = \frac{2r}{h} = \frac{14}{6} = \frac{7}{3}$$

23. Find the HCF of $(3^{45} - 1)$ and $(3^{35} - 1)$.

- a) 240
- b) 241
- c) 243
- d) 242

Answer: D

$$\text{HCF} = (3^{45} - 1), (3^{35} - 1)$$

Take HCF of 45, 35, which is equal to 5

$$\text{So, } (3^5 - 1) = (243 - 1) = 242$$

24. If the numerator of fraction has been increased by 50 percent and the denominator by 80 percent, then fraction becomes $5/6$, and then finds the original fraction.

- a) $x/y = 1$
- b) $x/y = 2$
- c) $x/y = 3$
- d) $x/y = 4$

Answer: A

Let the numerator be x and denominator be y

According to the question

$$1.5x / 1.8y = 5/6$$

$$x/y = 1/1 = 1$$

25. In equilateral triangle A, B and C, the perimeter of equilateral triangle is 24 cm, then Find the area?

- a) $9\sqrt{3} \text{ cm}^2$
- b) $12\sqrt{3} \text{ cm}^2$
- c) $16\sqrt{3} \text{ cm}^2$
- d) $10\sqrt{3} \text{ cm}^2$

Answer: C

Perimeter of equilateral triangle = 24 cm

$$3a = 24$$

$$a = 8 \text{ cm}$$

Area of equilateral triangle = $\frac{\sqrt{3}}{4} \times a^2$

$$= \frac{\sqrt{3}}{4} \times 8^2$$

$$= \frac{\sqrt{3}}{4} \times 64$$

$$= 16\sqrt{3} \text{ cm}^2$$

26. If $(3^m \times 27) / (3 \times 3^2) = 81$, then find the value of m.

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- a) 4
- b) 3
- c) 2
- d) 5

Answer: A

$$(3^m \times 27) / (3 \times 3^2) = 81$$

$$(3^m \times 3^3) / (3 \times 3^2) = 81$$

$$(3^{m+3}) / (3^3) = 81$$

$$3^m = 81$$

$$3^m = 3^4$$

$$m = 4$$

27. The speed of the bus is 45 kmph, overtakes a truck which is ahead by 150 m in 30 sec. What was the speed of the truck?

- a) 29 km/hr
- b) 7 km/hr
- c) 27 km/hr
- d) 25 km/hr

Answer: B

Relative Speed = Speed of Bus – Speed of Truck

$$150/30 \text{ m/sec} = 45 \text{ km/hr} - \text{Speed of Truck}$$

$$150 \times 3600 / 30 \times 1000 \text{ km/hr} = 45 \text{ km/hr} - \text{Speed of Truck}$$

$$18 \text{ km/hr} = 45 \text{ km/hr} - \text{Speed of Truck}$$

$$\text{Speed of Truck} = 45 - 18 = 27 \text{ km/hr}$$

28. If $\frac{1}{4}$ of half of a number is equal to 55, then what is the number?

- a) 100
- b) 110
- c) 400
- d) 440

Answer: D

Let the number be x,

According to the question,

$$\frac{1}{4} \times \frac{1}{2} \times x = 55$$

$$\frac{1}{8} \times x = 55$$

$$x = 55 \times 8 = 440$$

29. If the speed of the boat is 10 km per hour in calm water and the speed of the stream is 2 km per hour, then how long will it take to go 96 km in the direction of the stream?

- a) 5 hour
- b) 7 hour
- c) 8 hour
- d) 6 hour

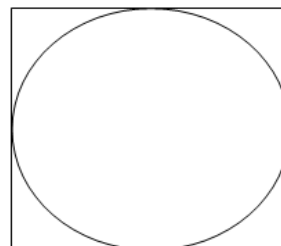
Answer: C

$$\text{Time} = \text{Distance} / \text{Speed} = 96 / (10 + 2) = 96 / 12 = 8 \text{ hour}$$

30. The area of the largest circle formed inside a square of side 21 cm will be.

- a) 346.5 cm²
- b) 343 cm²
- c) 562 cm²
- d) 465 cm²

Answer: A



Side of square = 21 cm, means radius of circle = side/2 = 21/2

$$\text{Area of largest circle} = \pi r^2$$

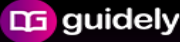
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$$= \frac{22}{7} \times (21/2)^2$$

$$= \frac{22}{7} \times 441/4$$


$$= 1386/4$$

$$= 346.5 \text{ cm}^2$$

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