1. Mohan deposits Rs. 150 on the first of every month starting from 1st Jan 1985 in the recurring deposit of the scheme of a bank, which allows simple interest at 6 % p.a on the sum standing in his deposit at the end of each month. What is the amount Mohan is entitled to on 31st Dec 1985?

A. 1800

B. 1818

C. 1450

D. 2580

Answer: Option D

Explanation :

Simple interest = P(1 + RT)

= 150(1 + 0.06*12)

= 150(1 + 0.72)

= 150(1.72)

= 2580

2. Simplify sqrt (64 + 64x2)= sqrt(25 + 25x2)

A. Sqrt (1-2x2)

B.3 sqrt(1+x2)

C. Sqrt (1-x2)

D.4 sqrt(x2)

Answer: Option B

Explanation :

Sqrt (64 + 64x2)= sqrt(25 + 25x2)

8 Sqrt(1 + x2) = 5 sqrt (1 + x2)

3 sqrt (1 + x2)

3. Prakash is the son of Pramod. Neha is the daughter of Abhisheik. Ruchi is the mother of Neha. Awadhesh is the brother of Neha. How is Awadhesh related to Ruchi.

A. Brother

B. Father

C. Son

D. Cannot be determined

Answer: Option C

Explanation :

Neha is the daughter of Abhisheik and Ruchi.

Abhisheik and Ruchi are husband and wife repestively.

Awadhesh is the brother of Neha and hence, he is the son Abhisheik and Ruchi.

4. Work : Motive

A. Body : Mind

B. Wall : Paint

C. Body : Food

D. School: Teacher

Answer: Option C

Explanation :

Both Body and Work needs some impulse to proceed with its action.

5. A person travels the first 1/3 of distance to be covered at the speed of x km/hr, the second 1/3 at 2x km/hr and the last 1/3 at 3x km/hr. What is the average speed for the entire journey?

A. 1/2x km/hr

B. 2/3x km/hr

C. x km/hr

D. 180/11 km/hr

Answer: Option D

Explanation :

Suppose if the total distance = 90 km

Then, he travels First 30 km in x km/hr , next 30 km by 2x/hr and the last 30 km by 3x km/hr

If x = 10 km/hr then it takes 3 hours to cover first 30 km , 1(1/2) hour to cover the next 30 km and 1 hour to cover the last 30 km.

So it takes 11/2 hours to cover the distance of 90 km

Thus the average speed = 90 / 11/2

= 180 / 11 km/hr

6. A takes twice as much as B or thrice as much time as C to finish the piece of work. Working together they can finish the work in 2 days. B can do the work alone in ?

A. 4 days

B. 6 days

C.8 days

D.12 days

Answer:Option B

Explanation:

Suppose A, B and C take x,	x	and	x	days respectively to finish the work.
	2		3	

Then,		1	+	2	+	3		=	1
		x		x		x			2

	6	=	1
	x		2

x = 12.

So, B takes (12/2) = 6 days to finish the work.

7 . The length of the bridge, which a train 130 meters long and travelling at 45 km/hr can cross in seconds, is

A. 200 m

B. 225 m

C. 245 m

D. 250 m

Answer: Option B

Explanation:

Speed =45 km/hr

=45 × 5/18 m/s

=12.5 m/s

Time =30 s

Distance travelled = 12.5×30 = 375 m

Length of the bridge = 375−130 = 245 m

8. Arun, Kamal and Vinay invested Rs.8000 , Rs.4000 and Rs. 8000 respectively in a business. Arun left after six months. If after eight months there was a gain of Rs.4005, then what will be the share of Kamal ?

A. Rs.890

B. Rs.1335

C. Rs.1602

D. Rs.1780

Answer: Option C

Explanation:

Arun : Kamal : Vinay = (8,000 x 6) : (4,000 x 8) : (8,000 x 8)
= 48 : 32 : 64
= 3 : 2 : 4

Kamal's share=4005∗29=Rs890

9. How many times in a day , the hands of a clock are straight

A. 22

B. 24

C. 44

D. 48

Answer: Option A

Explanation:

The hands of a clock point in opposite directions (in the same straight line) 11 times in every 12 hours. (Because between 5 and 7 they point in opposite directions at 6 o'clcok only).

So, in a day, the hands point in the opposite directions 22 times.

10. The average weight of A, B and C is 45 kgs. If the average weight of A and B is 40 kgs and of B and C is 43 kgs, then the weight of B is

A. 17 kgs

B. 20 kgs

C. 26 kgs

D. 31 kgs

Answer: Option D

Explanation :

A+B+C = 45*3= 135Kg.....(i)
A+B = 40*2 = 80 Kg .....(ii)
B+C = 43*2 = 86 Kg .....(iii)
from i and ii
C= 55Kg .....(iv)
from iii and iv

B = 31 Kg

11. Pick the odd one out: 41,43,47,53,61,71,73,81

a. 61

b. 71

c. 73

d. 81

Answer: Option D

Explanation :

All the numbers except 81 are prime numbers.

12. A person's present age is 2/5 th of the age of his mother. After 8 years, he was half the age of his mother. How old is the mother at present.

A. 32

B. 36

C. 40

D. 48

Answer: Option C

Explanation:

Let the mother's present age be x years.

Then, the person's present age = 2/5 x years.

(2x/5 + 8) = 1/2 (x + 8)

2(2x + 40) = 5(x + 8) => x = 40.

13. In a mixture of 60 litres, the ratio of milk and water is 1 : 2. If the ratio is to be 2 :1 then the quantity of water further to be added is ?

A. 20 litres

B. 40 litres

C. 60 litres

D. 80 litres

Answer: Option D

Explanation:

Quantity of Milk = 60*(2/3) = 40 liters
Quantity of water = 60-40 = 20 liters

As per question we need to add water to get quantity 2:1

=> 40/(20+x) = 1/2
=> 20 + x = 80

=> x = 60 liters

14. What decimal of an hour is a second?

A. 0.0025

B. 0.0256

C. 0.00027

D. 0.000126

Answer: Option C

Explanation :

1 Hour is divided by 60 = 0.0166667, the decimal an hour for a minute. This divided by 60 = 0.00027778, the decimal of an hour for one second.

15. It was Sunday on Jan 1, 2006 . What was the day of the week Jan 1 , 2010

A. Sunday

B.Thursday

C. Friday

D.Wednesday

Answer : Option C

Explanation

The day of the week Jan 1, 2010 was Friday

16. Triangle PQR is an isosceles triangle in which the sides xy and xz are 15 cm each and the base yz is 18 cm. AB is on xz and XY, respectively. Find the area of ABCD ?

A. 270 cm2

B. 180 cm2

C. 275 cm2

D. 178 cm2

Answer: Option A

Explanation :

AB = 15 cm , BC = 18 cm

Area of ABCD = 15 * 18 = 270 cm2

17. To comfortably sit in a room, every girl must be allowed a floor space of 2 sq.m and air space of 5.5 cubic metres. Fifty girls are seated comfortably in a room 10 m long. What should be its height ?

A. 6 m

B. 5.5 m

C. 5 m

D. 5.55 m

Answer: Option B

Explanation :

Floor space required = 50 * 2 = 100 m2

Air space required = 5.5*100 = 550 m3

Height = 550/100 = 5.5 m

18. Aparna's mother is the daughter of Vishnu's sister. How is Vishnu's mother related to Aparna's mother?

A. Mother

B. Daughter

C. Sister

D. Grandmother

Answer: Option D

Explanation:

Aparna 's mother is the niece of Vishnu. So, Vishnu is the maternal uncle of Aparna's mother.

Thus Vishnu 's Mother will be the grandmother for Aparna's mother.

19. BLADE : GRASS ::

A. Dig : Shovel

B. Size : Hole

C. Grain : Rice

D. Food : Morsel

Answer: Option C

Explanation :

Grass is the form of blade and Rice is the grain

20. If a train runs at 20 km/hr , it reaches the destination late by 10 minutes , but if it runs at 30 km/hr it is late by 2 minutes only. The correct time for the train to complete its journey is :

A. 8 mins

B. 12 mins

C. 14 mins

D. 15 mins

Answer: Option C

Explanation :

Let us consider the time of journey be T hrs

then,as distance is same, then

$\Rightarrow 20(T + 10/60) = 30 (T + 2/60)$

$20 T + 20/6 = 30T + 1$

$30 T – 20 T = 20/6 – 1$

$10 T = 14/6$

$T = 14/60$ hour

Thus the requires time is 14 minutes

21. A and B can do a piece of work in 30 days, while B and C can do the same work in 24 days and C and A in 20 days . They all work together for 10 days when B and C leave. How many days more will A take to finish the work ?

A. 18 days

B. 24 days

C. 30 days

D. 36 days

Answer: Option A

Explanation :

(A+B)’s one day work = 1/30

(B+C)’s one day work = 1/24

(C+A)’s one day work = 1/20

2(A + B + C)'s 1 day's work =1/30+1/24+1/20

=15/120

=1/8

Therefore, (A + B + C)'s 1 day's work= 1/ (2*8) =1/16

Work done by A, B, C in 10 days =10/16 = 5/8

Work left = 1-5/8=3/8

Work done by A in a day = (A + B + C) – (B + C)

=1/16 - 1/24

= 1/48

1/48 of work will be done by A in 1 day.

Thus the 3/8 of work left = 48*3/8 = 18 days.

22. A train passes a station platform in 36 seconds and a man standing on the platform in 20 seconds. If the speed of the train is 54 km/hr , what is the length of the platform?

A. 120 m

B. 240 m

C. 300 m

D. 260 m

Answer: Option B

Explanation :

Speed of the train = 54 km/hr

= 54x 5/18

= 15 m/s.

Train passes man in 20 secs.

Length of train= time x speed

= 20x 15 = 300m.

Train passes platform in 36 secs. Let platform length be l

(300+l)= 36 x 15

300+l= 540

L = 240m

Length of platform = 240m

23. Aman started a business investing Rs.70,000. Rakhi joined him after six months with an amount of Rs. 1,05,000 and Sagar joined them with Rs. 1.4 lakhs after another six months. The amount of profit earned should be distributed in what ratio among Aman , Rakhi and Sagar respectively , Aman started the business.

A. 7 : 6 : 10

B. 12 : 15 : 16

C. 42 : 45 : 56

D. Can't be determined

Answer: Option B

Explanation :

Aman : Rakhi : Sagar

= (70,000 * 36) : (1,05,000 * 30) : (1,40,000 * 24)

= 12 : 15 : 16

24. How many times do the hands of a clock coincide in a day ?

A. 20

B. 21

C. 24

D. 22

Answer: Option D

Explanation :

A day will have 24 hours.

Hands of a clock overlap 22 times in a day

means hands of a clock overlap 22 times in 24 hours.

hands of clock meet 11 times in 12 hours.

25. The average weight of 8 persons is increased by 2.5 kg when a new person comes in place of one of them weighing 65 kg. What must be the weight of the new person?

A. 76 kg

B. 50 kg

C. 85 kg

D.75 kg

Answer: Option C

Explanation

Total weight increased = 2.5 * 8 = 20

So, the weight of the new person = 20 + 65

= 85 kg

26. Pick the odd one out: 331, 482, 551, 263 ,383, 362 , 284

A. 263

B. 383

C. 331

D. 551

Answer: Option B

Explanation :

In each number except 383, the middle digit is the product of first and the third digit.

27. The present ages of three persons are in proportions 4 : 7: 9 . Eight years ago sum of their ages was 56. Find their present ages in years

A.8,20,28

B.16,28,36

C.20,35,45

D.None of these

Answer: Option B

Explanation:

Let their present ages be 4x, 7x and 9x years respectively.

Then, (4x - 8) + (7x - 8) + (9x - 8) = 56

20x = 80

x = 4.

Their present ages are 4x = 16 years, 7x = 28 years and 9x = 36 years respectively.

28. A sum of money is to be distributed among A , B , C and D in the proportion 5:2:4:3. If C gets Rs. 1000 more than D , what is B's share?

A. 500

B. 1500

C. 2000

D.1000

Answer: Option C

Explanation:

Let the shares of A, B, C and D be Rs. 5x, Rs. 2x, Rs. 4x and Rs. 3x respectively.

Then, 4x - 3x = 1000

x = 1000.

29. 95 + 240.016 + 23.98 = ?

A. 94.6

B. 111.2

C. 298.016

D. 292

Answer: Option C

Explanation :

34.95 + 240.016 + 23.98 = 298.016

30. Which of the following is not a leap year?

A. 700

B. 800

C. 1200

D. 400

Answer: Option A

Explanation :

All the years except 700 are divisible by 4.

31 . An empty jar weighs wl gm. The jar half filled with a liquid weights w2 gm. find the weight of the jar. Completely filled with the same liquid.

A. 2w+wl.

B. 2(w2-w1)

C. 2w2-wl

D. 2(w2+wl)

Answer: Option C

Explanation :
Full empty jar = w1
Half jar liquid + jar = w2
Then , Full jar of liquid + 2 jar = 2w2

Full jar of liquid + jar = 2w2 –w1

32. A strip of paper 100m long, 4cm wide and 0.1mm thick is wound round a cylindrical Core of diameter 10 cm and height 4cm. What is the diameter of the cylinder now?

A. 41.2cm2

B.40cm3

C. 43.5cm

D. 63 cm

Answer: Option A

Explanation:
Volume of core = 22/7*10/4*10/4*4cm3
Volume of core with paper = 22/7*d/4*d/4*4cm3
Volume of paper alone = 22/7[d2/16-102/16]*4cm2
= 22/7*[d2-100/4]cm3
Also, volume of paper = 22/7*100*100*4*0.1/10cm3
= 100*22/7*400*0.1/10cm3
= 400cm3 400*22/7
= 22/7(d2-100)/4 d 2

= sqrt(1700) = 41.2(approx)

33. If A is B's brother, B is C's sister and C is D's father, D is A's…

A. Brother

B. Sister

C. Nephew

D. Cannot be determined

Answer: Option C

Explanation:
i)A(Male)(Brother) to B(Female)
ii)C(Male)(Brother) to B(Female)
iii)A and C are brothers
iv)C is the father of D
v)So, D is A's nephew.

34. SUNFLOWER: LIGHT ::

A. Torch: Battery

B. Scholar: Books

C. Ink: Print

D. Mould: Humidity

Answer: Option B

Explanation:

Both are growing by the power of the other.

35. A can alone do a piece of work in 6 days and B alone in 8 days . A and B undertook to do for Rs. 3200 . With the help of C they completed the work in 3 days . How much is to be given to C ?

A. Rs. 375

B. Rs. 400

C. Rs. 600

D. Rs. 450

Answer: Option B

Explanation :
A's one day work = 1/6
B's one day work = 1/8
C's one day work = 1/3 – (1/6 +1/8)
= 1/3 – 7/24
= 8- 7/24 = 1/24
C's three days work = 3 / 24
= 3/24 * 3200

= Rs. 400

37. How many seconds will a 500-meter-long train take to cross a man walking with a speed of 3 km/hr in the direction of the moving train if the speed of the train is 63 km/hr?

A. 25

B. 30

C. 40

D. 45

Answer: Option B

Explanation
Relative speed = 60 – 3 = 60 km/hr
= 60 * 5/18
= 50/3 m/s

Time taken to cross the man = Distance / Speed
= 500 / 50/3

= 30 seconds

38. A began a business with Rs. 85,000. He was joined afterwards by B with Rs. 42,500. For how much period does B join ,if the profit at the end of the year are divided in the ratio 3:1?

A. 4 months

B .5 months

C. 6 months

D. 8 months

Answer: Option D

Explanation :
A shared Rs. 85,000 for 12 months and B shared Rs.42,500 for x months.
So, (85,000 * 12) : (42,500 * x) = 3 : 1
85,000 * 12 / 42,500x = 3
85,000 * 12 = 42,500 * 3x
2 * 12 = 3x

Hence, x = 8 months

39. A clock started at noon. By 10 minutes past the hour hand turned through

A. 145 degrees

B. 150 degrees

C. 155 degrees

D. 160 degrees

Answer: Option C

Explanation :
Angle traced by hour hand in 12 hours = 360 degree
Angle traced by hour hand in 5hour10 minutes = 31/6 hours
= 31/6 * 360/12

= 155 degrees

40. In the first 10 overs of a cricket game, the run rate was only 3.2. What should be the run rate of the remaining 40 overs to reach the target of 282 runs?

A. 6.25

B. 6.5

C. 6.75

D. 7

Answer: Option A

Explanation :
Runs scored in the first 10 overs = 10 × 3.2 = 32
Total runs = 282
Remaining runs to be scored = 282 - 32 = 250
Remaining overs = 40

Run rate needed = 250 / 40 = 6.25

41. Pick the odd one out : 8 , 27 , 64 , 100 , 125 , 216 , 343

A. 27

B. 100

C. 125

D. 343

Answer: Option B

Explanation :

Because all are cubes of the numbers except 100.

42. A is two years older than B, who is twice the old as C. If the total ages of A, B, and C are 27, then how old is B?

A. 7

B. 8

C. 9

D. 10

Answer: Option D

Explanation
Let the age of C be x years, then the age of B will be 2x years and A will be (2x + 2)years.
Given the sum of their ages = 27
(2x+2) + 2x + x = 27
5x + 2 = 27
5x = 25
X = 5 years

Thus the age of B = 10 years.

43. In a mixture of 60 litres, the ratio of milk and water is 2:1. If the ratio is to be 1:2, the quantity of water to be further added is?

A. 20 litres

B. 30 litres

C. 40 litres

D. 60 litres

Answer: Option D

Explanation:
Quantity of Milk = 60*(2/3) = 40 liters
Quantity of water = 60-40 = 20 liters
As per question we need to add water to get quantity 2:1
=> 40/(20+x) = 1/2
=> 20 + x = 80

=> x = 60 liters

44. What decimal of an hour is a second?

A. 0.0025

B. 0.0256

C. 0.00027

D. 0.000126

Answer: Option C

Explanation :

1 Hour is divided by 60 = 0.0166667, the decimal an hour for a minute. This divided by 60 = 0.00027778, the decimal of an hour for one second.

45. It was Sunday on Jan 1, 2006. What was the day of the week Jan 1, 2010

A. Sunday

B. Thursday

C. Friday

D.Wednesday

Answer: Option C

Explanation

The day of the week, Jan 1, 2010 was Friday

Recent Avasoft written test questions and answers:

Core Java Questions and Answers

1. **What is the difference between JDK, JRE, and JVM?**
   Answer: JDK is the Java Development Kit used for developing programs. JRE is the Java Runtime Environment used to run Java applications. JVM is the Java Virtual Machine that executes Java bytecode.
2. **What is the difference between ArrayList and LinkedList?**
   Answer: ArrayList stores elements in a dynamic array and is faster for accessing data, while LinkedList uses nodes and is better for insertion and deletion operations.
3. **What is the difference between == and equals() in Java?**
   Answer: The "==" operator compares memory locations, while the equals() method compares the actual values of the objects.
4. **What is a constructor in Java?**
   Answer: A constructor is a special method used to initialize objects. It has the same name as the class and is called automatically when an object is created.
5. **What is the difference between final, finally, and finalize()?**
   Answer: final is a keyword used to declare constants, finally is a block used in exception handling, and finalize() is a method called before garbage collection.
6. **What is exception handling in Java?**
   Answer: Exception handling is a way to manage runtime errors using try, catch, and finally blocks to prevent program crashes.

OOPs Questions and Answers

1. **What are the four main OOPs concepts?**
   Answer: Encapsulation, Inheritance, Polymorphism, and Abstraction.
2. **What is encapsulation?**
   Answer: Encapsulation means binding data and methods into a single unit and restricting access using access modifiers.
3. **What is inheritance?**
   Answer: Inheritance allows one class to acquire the properties and methods of another class.
4. **What is polymorphism?**
   Answer: Polymorphism allows methods to perform different actions based on the object that calls them (method overloading and overriding).
5. **What is abstraction?**
   Answer: Abstraction hides implementation details and shows only essential features to the user.
6. **What is the difference between abstract class and interface?**
   Answer: An abstract class can have both abstract and non-abstract methods, while an interface can only have abstract methods (in older versions of Java).

Scenario-Based OOPs Questions

1. **If you are building a banking application, how would you use encapsulation?**
   Answer: By keeping account details private and allowing access only through getter and setter methods.
2. **How would you implement polymorphism in a vehicle system?**
   Answer: Create a base class Vehicle with a method move(), and override it in subclasses like Car and Bike to show different movement behaviors.
3. **In a student management system, how would you use inheritance?**
   Answer: Have a parent class Person and child classes Student and Teacher to reuse common attributes like name and age.
4. **Why do we use interfaces in real-time projects?**
   Answer: Interfaces help achieve loose coupling and make the code flexible and maintainable.
5. **If you are asked to change an existing method without affecting others, which OOPs concept helps you?**
   Answer: Polymorphism and abstraction help you modify or extend functionalities with minimal changes.
6. **How do you decide between abstract class and interface in a project?**
   Answer: Use abstract class when classes share common behavior, and interface when you only need to define structure.

Duplicate Checking (Brute Force and Optimal Solution)

Question: How do you find duplicates in an array?
Answer 1 (Brute Force):
Use two nested loops to compare each element with every other element. This approach is simple but not efficient ($O(n^2)$ time complexity).

Answer 2 (Optimal Solution):
Use a HashSet. Traverse the array, and check if the element already exists in the set. If it does, it's a duplicate; otherwise, add it to the set. This reduces the time complexity to O(n).