

Question 1 (Arithmetic)

Find the value of $1.9 + 2.99 + 3.999 + 4.9999 + \dots + 9.999999999$. Leave your answer to the nearest whole number.

- A. 45
- B. 53
- C. 54
- D. 55
- E. None of the above

Ans: C

Question 2 (Arithmetic)

If $A = \frac{2}{5} + \frac{2}{6} + \frac{2}{7} + \frac{2}{8} + \frac{2}{9}$, find the value of A. Leave your answer to the nearest whole number.

- A. 1
- B. 2
- C. 3
- D. 4
- E. None of the above

Ans: A

Question 3 (Logic)

Mr. Tan placed 10 coins on a table, with all heads up. He then asked his son to flip exactly 3 coins in each round. What is the least number of rounds needed to ensure all the coins have tails up?

- A. 4
- B. 5
- C. 6
- D. 7
- E. 8

Ans: A

Question 4 (Angle)

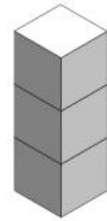
How many times do the hour hand and minute hand of a standard clock meet each other in 24 hours?

- A. 23
- B. 24
- C. 25
- D. 26
- E. None of the above

Ans: E

Question 5 (Area)

A cuboid (rectangular box) is made up of 3 cubes. The surface area of the cuboid is 224 cm^2 . What is the sum of the total surface area of the 3 separate cubes?



- A. 224 cm^2
- B. 240 cm^2
- C. 256 cm^2
- D. 288 cm^2
- E. None of the above

Ans: D

Question 6 (LCM)

A teacher wrote three numbers on the whiteboard: 90, 110 and X. He asked the students to find the lowest common multiple of the three numbers. John accidentally took 90 as 99, but he still got the correct answer. What is the smallest possible value of X?

- A. 2
- B. 5
- C. 11
- D. 990
- E. None of the above

Ans: E

Question 7 (Area)

One side of a square is reduced by 20%, while the other side is increased by 2 cm to form a rectangle. If the area of the rectangle is the same as the original square, what is the area of the square in cm^2 ?

- A. 36
- B. 49
- C. 64
- D. 81
- E. None of the above

Ans: C

Question 8

There are 5 points on a circle. How many triangles can be formed by joining 3 of these points?

- A. 3
- B. 5
- C. 10
- D. 15

E. None of the above

Ans: C

Question 9

The table shows the price of tickets for groups of people.

Number of person	1 to 25	26 to 50	51 and above
Price per person	\$20	\$18	\$16

Peter and Tom each bring a group of tourists to visit some attractions. Peter's group has fewer people than Tom's group. If they buy the tickets separately, they will pay \$1322 in total. If they buy the tickets together, they only need to pay \$1136. How many people are there in Peter's group?

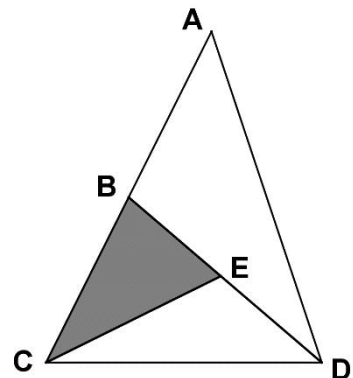
- A. 19
- B. 20
- C. 21
- D. 22
- E. 23

Ans: D

Question 10 (Area)

In the diagram, the area of triangle ACD is 52 cm^2 . Given that $BE = DE$ and $AB = BC$, what is the area of the shaded region?

- A. 13 cm^2
- B. 14 cm^2
- C. 15 cm^2
- D. 16 cm^2
- E. None of the above



Ans: A

Question 11

In a certain year, there are more Sundays than Tuesdays, and there are more Saturdays than Thursdays. Which day of the week is 15 July in that year?

- A. Monday
- B. Friday
- C. Saturday
- D. Sunday
- E. None of the above

Ans: C

Question 12 (Fraction)

In the following, x, y, z are whole numbers greater than 0. What is the product of x, y and z ?

$$\frac{1}{x + \frac{1}{y + \frac{1}{z + \frac{1}{z}}}} = 1 - \frac{1}{4 + \frac{1}{4 + \frac{1}{4}}}$$

- A. 6
- B. 8
- C. 12
- D. 24
- E. None of the above

Ans: C

Question 13 (Ratio)

A fruit store ordered apples from its supplier. The apples were delivered in batches. In the first batch, the store received $\frac{2}{7}$ of their order. In the second batch, the store received 55 kg of apples. The ratio of the number of apples received in the first two batches and to the number of apples yet to be delivered is 3:5. How many kilograms of apples did the store receive in the first two batches?

- A. 176
- B. 231
- C. 286
- D. 616
- E. None of the above

Ans: B

Question 14 (Pattern)

There are 512 people standing in line. The 1st person goes to the back of the line and the 2nd person in line sits down, so that the person who was in the 3rd is now the first person standing. Then this person in the front goes to the back of the line and next person sits down. This process is repeated until only one person remains standing. What was the original position in the line of the only remaining person?

- A. 1st
- B. 3rd
- C. 124th
- D. 256th
- E. None of the above

Ans: A

Question 15 (Remainder)

Whole numbers from 1 to 217 are divided by 9. There is a remainder in each division. What is the sum of all these remainders?

- A. 864
- B. 865
- C. 1080
- D. 1081
- E. None of the above

Ans: B

Part B

Question 16 (Remainder)

If 190 sweets are to be distributed equally among the students in Class 6A, there will be extra 8 sweets. If 360 sweets are to be distributed equally among these students, then there will be a shortage of 4 sweets. If 273 sweets are to be distributed equally among these students, then there will be no extras. What is the largest possible number of students in Class 6A?

Ans: 91

Question 17 (Prime)

It is given that the 4-digit number \overline{xyxy} has 6 factors. What is the smallest possible value for \overline{xyxy} ?

Ans: 2525

Question 18 (Remainder)

A 4-digit number K has the following properties:

When K is divided by 7, the remainder is 6.

When K is divided by 8, the remainder is 7.

When K is divided by 9, the remainder is 8.

When K is divided by 10, the remainder is 9.

What is the smallest possible value of K?

Ans: 2519

Question 19 (Angle)

At 4:16 pm, what is the angle (in degree) between the minute hand and hour hand of a standard clock?

Ans: 32 degrees

Question 20 (Remainder)

When 59, 92 and 136 are divided by a whole number X, each gives the same remainder. Find the largest possible value of X?

Ans: 11

Question 21 (Cryptarithm)

After adding the digit 3 on the right of a 4-digit number, a new 5-digit number is formed. The difference between these two numbers is 9876. What is the value of the original 4-digit number?

Ans: 1097

Question 22 (Perfect Square, Divisibility)

In a 4-digit perfect square, the first two digits are the same, and the last two digits are also the same. What is the value of this 4-digit number?

Ans: 7744

Question 23 (Speed)

A truck delivers goods from Town A to Town B, and then the empty truck will travel back to Town A. The speed of the truck is 60 km/h when it is loaded, 80 km/h when it is empty. The total travelling time of the round trip is 2 hours and 48 minutes. Find the distance between Town A and Town B.

Ans: 96 km

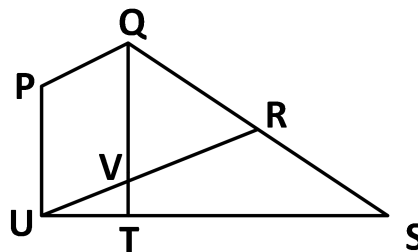
Question 24 (Ratio)

The ratio of the number of tables to chairs in a school is 7:5. After buying new chairs, the ratio becomes 4:3. Then, new tables were bought and the ratio become 8:5. Given that the school bought 23 more tables than chairs, how many chairs were there originally?

Ans: 100

Question 25 (Area)

$PQSU$ is a quadrilateral. Line QT and UR intersect at point V . $US = 4UT$, $2QR = QS$. Line PU is parallel to line QT , and line PQ is parallel to line UR . Given that the area of quadrilateral $VRST$ is 18 cm^2 , what is the area of parallelogram $PQVU$?



Ans: 16 cm^2