

Question 1:

The elevation of two lakes are 75 m and 174.28 m above sea level. The lakes are connected by a canal on which there are a number of locks. If a boat takes 8 hours to travel between the lakes, the mean change in elevation per hour is

- A. 12.41 m B. 21.79 m C. 5.25 m D. 4.14 m E. 7.80 m
-

Question 2:

A glass filled with water weighs 1000 g. When half the water is removed from the glass, the glass and the remaining water weigh 700 g. What is the weight of the empty glass?

- A. 600 g B. 500 g C. 350 g D. 400 g E. 300 g
-

Question 3:

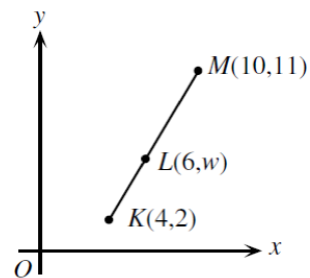
Which of the numbers -5 , $\frac{3}{2}$, 2 , $\frac{3}{5}$, 8 is larger than the square of the number?

- A. -5 B. $\frac{3}{2}$ C. 2 D. $\frac{3}{5}$ E. 8
-

Question 4:

Point L lies on line KM, as shown in the diagram.
The coordinates of L are

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



Question 5:

The operation \otimes is defined such that $a \otimes b = \frac{b}{a} - 1$.

The value of $(3 \otimes 4) \otimes (1 \otimes 3)$ is

Question 10:

50% of P is the same as 20% of Q.
Express P as a percentage of Q.

- A. 60% B. 250% C. 40% D. 20% E. 30%
-

Question 11:

A student counts all the digits used to number the pages of a book.
If 615 digits were used, starting at page 1, the number of pages will be

- A. 164 B. 241 C. 307 D. 328 E. 615
-

Question 12:

A test has ten questions. Three points are awarded for each correct answer, one point for each question not answered and wrong answers do not score any points.
A total score that is *not* possible is

- A. 11 B. 13 C. 17 D. 23 E. 29
-

Question 13:

When 14 is divided by a positive integer n , the remainder is 2. For how many different values of n is this possible?

- A. 1 B. 2 C. 3 D. 4 E. 5
-

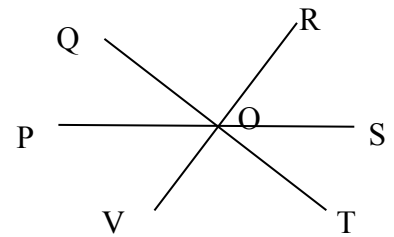
Question 14:

The straight line $y = 2x + k$ passes through the point (3, 5).
The value of k is

- A. -2 B. -1 C. 0 D. 1 E. 2

Question 15:

In the diagram, $\angle POR = 125^\circ$ and $\angle QOS = 150^\circ$.
The size of $\angle TOV$ is



- A. 45° B. 60° C. 85° D. 90° E. 95°

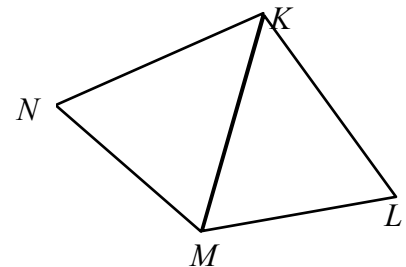
Question 16:

A train travelling at constant speed takes 15 seconds to pass a signpost and takes 45 seconds to pass completely through a tunnel which is 700 m in length. The speed of the train, in kilometres per hour, is

- A. 42 B. 68 C. 72 D. 84 E. 100

Question 17:

In the quadrilateral $KLMN$
 $KM = KL = KN$.
If, $\angle NKL = 118^\circ$, then the size of $\angle LMN$ is



- A. 111° B. 118° C. 121°
D. 140° E. 242°

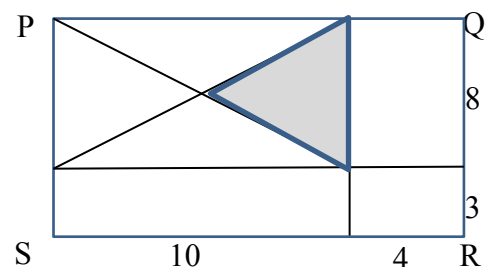
Question 18:

There are three children in a family and one of them is a teenager. When their ages are multiplied together the result is 770. How old is the youngest child?

- A. 2 B. 5 C. 7 D. 10 E. 14

Question 19:

What fraction of the rectangle $PQRS$ is shaded?



- A. $\frac{1}{16}$ B. $\frac{3}{5}$ C. $\frac{1}{8}$
D. $\frac{1}{10}$ E. $\frac{10}{77}$
-

Question 20:

A rectangular box has faces with areas of 42, 78 and 91 square centimetres.
The volume of the box, in cubic centimetres, is

- A. 211 B. 422 C. 512 D. 546 E. 636
-

Question 21:

If $x = 3^n + 3^n + 3^n$, which of the following is equal to x^3 ?

- A. 9^{3n} B. 3^{3n+3} C. 27^{3n} D. 3^{3n} E. 3^{n+4}
-

Question 22:

In a container there are 8 red, 3 white and 9 yellow marbles. If 3 marbles are randomly selected, the probability of getting 1 white marble and 2 red marbles is

- A. $\frac{1}{12}$ B. $\frac{1}{4}$ C. $\frac{7}{285}$ D. $\frac{2}{3}$ E. $\frac{7}{95}$
-

Question 23:

One of these numbers is equal to the product of the other four. Which is it?

- A. $\frac{1}{9}$ B. $\frac{1}{2}$ C. $\frac{2}{3}$ D. 3 E. 4

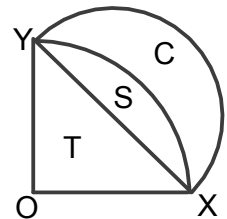
Question 24:

At a party, the ratio of girls to boys is 2 : 3 and the ratio of boys to adults is 4 : 5.
What is the ratio of children to adults?

- A. 2 : 5 B. 4 : 3 C. 8 : 15 D. 7 : 5 E. 3 : 4
-

Question 25:

OX, OY are radii of a quarter circle.
A semi-circle is drawn on XY as shown.
T, S and C represent the resulting triangle, segment and crescent.
The ratio area T : area C equals



- A. $3 : \pi$ B. 1 : 1 C. $13 : 4\pi$ D. $7 : 2\pi$ E. $15 : 4\pi$
-

Question 26:

If a heavy object is placed on rollers (with circumference of 50 cm) and then pushed in the desired direction, how far does the object move forward when the rollers have made one revolution?

- A. 0 cm B. 25 cm C. 50 cm D. 75 cm E. 100 cm
-

Question 27:

An electronic device has one bulb that flashes "on and off" each 60 seconds and another that flashes "on and off" each 62 seconds. They both flash "on and off" at 8:00 am. The time when they will next flash "on and off" together is

- A. 8:30 am B. 8:31 am C. 8:59 am D. 9:00 am E. 9:02 am
-

Question 28:

The average of n numbers is k . When another number x is added to the set, the average increases by 1. The value of x is

- A. $k + n + 1$ B. $k + 1$ C. n D. $k + n$ E. $\frac{n(k + 1)}{n + 1}$
-

Question 29:

If the base of a triangle is increased by 10% and the height of the triangle is decreased by 10%, the area of the triangle is decreased by

- A. 0% B. 0.1% C. 1% D. 10% E. 11%
-

Question 30:

Four suspects of a crime made the following statements to the police:

Andy: Carla did it

Bob: I did not do it

Carla: Dave did it

Dave: Carla lied when she said I did it

If the crime was committed by only one person, and exactly one of the four suspects told the truth, who committed the crime?

- A. Andy B. Bob C. Carla D. Dave E. None of the four
-