PRELIMINARY STAGE

Section A: General Knowledge

1. The pictorial representation of **sets** is attributed to _____

   A. John Napier
   B. John Conway
   C. John Venn
   D. John Williams

2. Blaise Pascal is one of the prominent mathematicians who laid the foundation of _____

   A. Probability
   B. Calculus
   C. Geometry
   D. Arithmetic

3. The International Day of Mathematics is celebrated on_____
   A. 14 January
   B. 14 March
   C. 14 May
   D. 14 July

4. The famous mathematician who first showed that 'subtracting a number from itself is zero' is _____
   A. Aryabhata
   B. Brahmagupta
   C. Newton
   D. Fibonacci

5. Who was the first person to use **pie chart** in 1801 to indicate proportions?

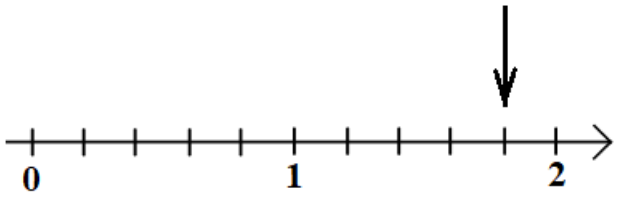
A. William Playfair
B. René Descartes
C. Charles Joseph Minard
D. Srinivasa Ramanujan

Section B: Application

1. $m^2 \times m^3 =$ _____

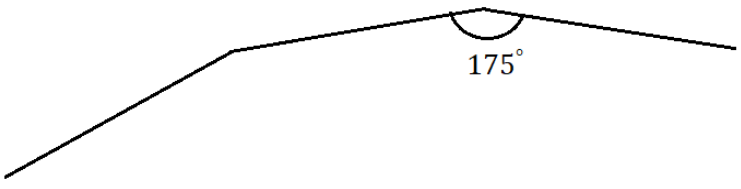
   A. $m^{2\times3}$ B. m^{2+3} C. $(m^2)^{2\times3}$ D. $(m^2)^{2+3}$

2. Which number is shown by the arrow?



A. 1.4 B. 1.7 C. 1.8 D. 1.9

3. The size of one interior angle of a regular polygon is 175°. The number of sides of the polygon is _____



A. 72 B. 36 C. 15 D. 5

4. **(6-x) – (x-5) – (4-x) =**
   A. x - 7
   B. -x - 7
   C. x + 7
   D. -x + 7

5. Which of the following numbers is the largest?

   $\frac{1}{3}, \quad 0.3, \quad 0.33, \quad 32\%$

   A. $\frac{1}{3}$ B. 0.3 C. 0.33 D. 32%

6. A rectangle has a width of 17 cm. Its length is twice its width. What is the perimeter of the rectangle?

   A. 578 cm
   B. 51 cm
   C. 34 cm
   D. 102 cm

7. $201^2 - 199^2$ = _____
   A. $(201 - 199)(201 - 199)$
   B. $(201 - 199)(201 + 199)$
   C. $(201 + 199)(201 + 199)$
   D. $None\ of\ the\ above$

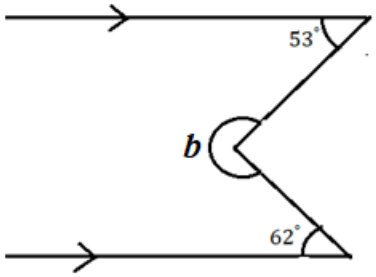
8. 96 hours and 91 days is the same as _____

   A. 5 days and 10 weeks
   B. 4 days and 13 weeks
   C. 4 days and 12 weeks
   D. 5 days and 11 weeks

9. A helicopter flies in a straight line from Port Louis. It moves 10 km towards the east and then 6 km towards the west. The helicopter then moves 3 km towards the north and stops. How far is it from Port Louis?

A. 19 km
B. 13 km
C. 5 km
D. 1 km

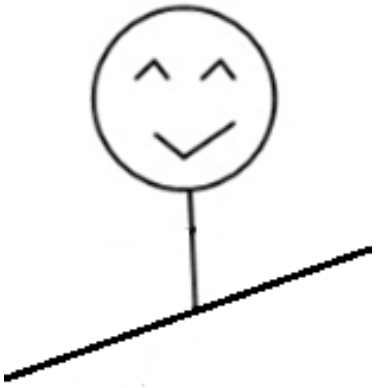
10. What is the unknown angle *b* in the diagram?



A. 245^0
B. 215^0
C. 124^0
D. 115^0

Section C: Logical Thinking/Reasoning

1. How many angles can you identify in the figure below?



A 5

B 6
C 9
D 11

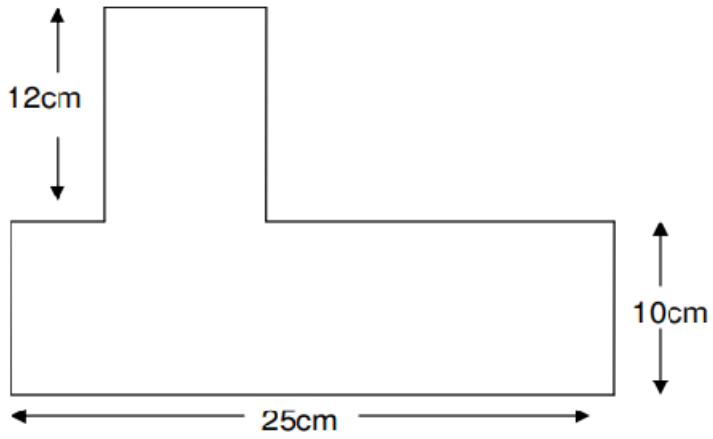
2. The decimal number which is exactly half-way between 0 and ¾ is _____

   A. 0.5 B. 0.125 C. 0.34 D. 0.375

3. If 500 is increased by 10% and the resulting number is decreased by 10%, the answer is _____

   A. less than 500 B. equal to 500 C. greater than 500 D. 0

4. Find the perimeter of the figure given below.



   A. 67 cm
   B. 94 cm
   C. 47 cm
   D. Not enough information to find perimeter

5. Macarons are sold in packs of 4 and packs of 6.

   A pack of 4 macarons costs Rs 90 and a pack of 6 macarons costs Rs 130.
   Bilal must buy 48 macarons.
   Which of the following options is the **cheapest** for Bilal?

A. 4 packs of 6 macarons and 6 packs of 4 macarons
B. 8 packs of 6 macarons
C. 12 packs of 4 macarons
D. 6 packs of 6 macarons and 3 packs of 4 macarons

6. The mean of five numbers is 20. The sum of the largest two numbers is 34.

   If the three smallest numbers are all equal, then the smallest number is_____

   A. 17
   B. 20
   C. 22
   D. 34

7. One number is thrice another number. When 15 is subtracted from the larger number, then the resulting number becomes twice the smaller number. Find the two numbers.

   A. 20 and 60
   B. 25 and 75
   C. 15 and 30
   D. 15 and 45

8. Which of the following number gives 380 when added to its own square?

A. 15
B. 17
C. 19
D. 20

9. I have four consecutive odd numbers. The largest number is one less than twice the smallest number.
   Which of the following is the largest of the four numbers?

   A. 9
   B. 11
   C. 13
   D. 15

10. Which of the following statements is true?
   A. All squares are rectangles
   B. All rectangles are squares
   C. All rhombi are squares
   D. All trapezia are parallelograms

FINAL ROUND

Section A: General Knowledge

1. Mathematics is the '**Queen of all Sciences**' is a popular quote by _____

A. Isaac Newton
B. Albert Einstein
C. Carl F. Gauss
D. Galileo Galilei

2. Who is the famous *lady* mathematician who has earned the title of the '**human computer**'?

A. Shakuntala Devi
B. Ada Lovelace
C. Emmy Noether
D. Hypatia

3. The *x*-*y* Coordinate system is named after which mathematician?

A. Blaise Pascal
B. Leonhard Euler
C. Pythagoras
D. René Descartes

4. Who introduced the symbol π in 1706?

A. William Newton
B. William Jones
C. William Wallace
D. William Hamilton

5. The World Statistics Day was first celebrated on _____

A. 20 October 2010

B. 20 October 2015

C. 20 October 2018

D. 20 October 2021

Section B: Application

1. What is the value of $\frac{10^{11}+10^{10}}{10^{10}}$?

A. 10^{11} B. 11 C. $\frac{2^{21}}{1^{10}}$ D. $\frac{21}{10}$

2. The interior angles of a pentagon are in the ratio of 2 : 3 : 4 : 5 : 6.
   The largest interior angle of the pentagon is _____

A. 108°

B. 135°

C. 162°

D. 172°

3. $\sqrt{\sqrt[3]{64}}$ = _____

A. 2 B. 4 C. 16 D. 24

4. Evaluate:

320 + 320 + 320 + 320 + 320

+ 320 + 320 + 320 + 320 + 320

+ 320 + 320 + 320 + 320 + 320

+ 320 + 320 + 320 + 320 + 320 = _____

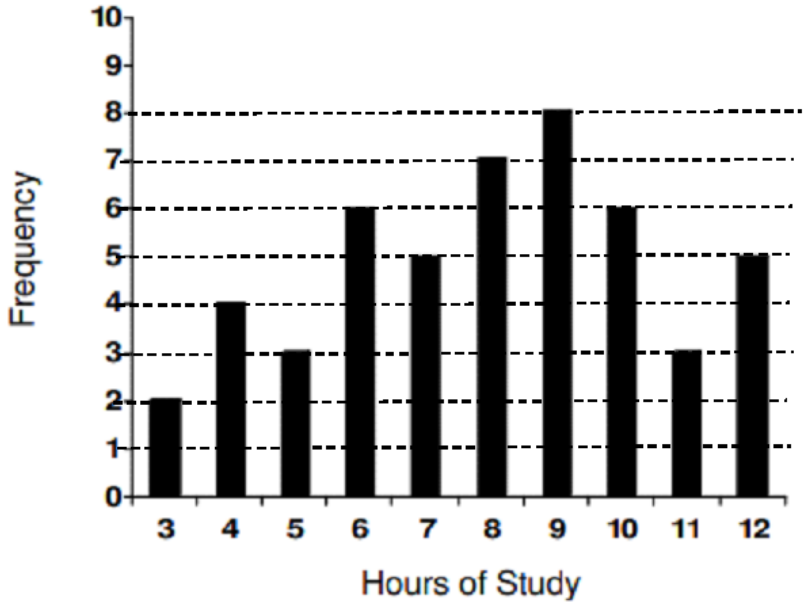
A. 3200

B. 6400

C. 32000

D.64000

5. Study the bar chart given below. It shows the number of hours which a group of Grade 8 students spent studying during a particular week.



How many students studied for **greater or equal to 9 hours** during the given week?

A. 22
B. 29
C. 42
D. 50

6. Karim is 19 years old, Aditi is 26 and Shawn is 31. In how many years from now will their ages add to 100?

A 6
B 8
C 16
D 24

7. The mean marks of 5 students in a Mathematics test is 75. If Rahul joins the group, the new mean mark of all the students is 70.
How many marks did Rahul score?

A. 75
B. 70
C. 45
D. 5

8. The perfect square number which is divisible by 4, 5, 6 and 8 is _____

A. 1600
B. 2500
C. 3600
D. 4900

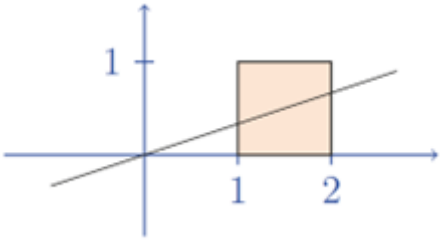
9. The LCM and HCF of two numbers, 24 and *x*, are 72 and 3 respectively.

The number *x* is _____

A. 9 B. 8 C. 6 D. 3

10. The line passing through (0, 0) bisects the area of square into two equal parts. The equation of the line is _____

A $y = 3x$
B $y = 2x$
C $y = \frac{x}{2}$
D $y = \frac{x}{3}$



Section C: Logical Thinking/Reasoning

1. Raja has 5 times as much money as Ali.
   Raja has Rs 300.
   How much money should Raja give to Ali so that they both have the same amount?

A. 50 B. 60 C. 120 D. 150

2. How many different positive whole numbers can replace the $\triangle$ to make this statement true?

$$\frac{\triangle}{10} + \frac{1}{3} < 1$$

A 3
B 4
C 5
D 6

3. Which of the following defines π?

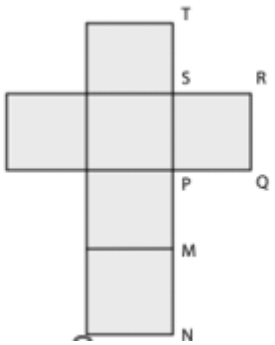
   A. ratio of circumference to radius

   B. ratio of radius to circumference

   C. ratio of circumference to diameter

   D. ratio of diameter to circumference

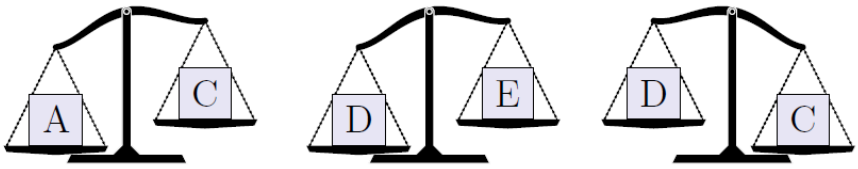
4. The diagram below shows the net of a cube.



When it is folded to form a cube, which edge joins MN?

A Edge ST
B. Edge QR
C. Edge MP
D. Edge PQ

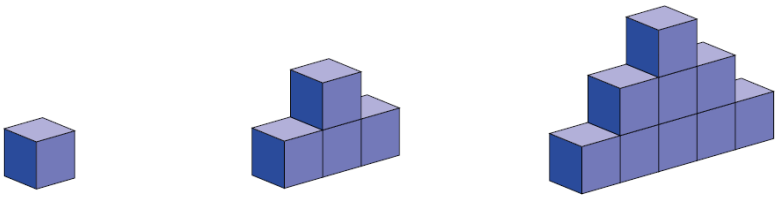
5. A monkey attempts to climb a pillar 30 m high. In the first minute it reaches a height of 15 m and in the next minute, it falls by 12 m.
   If this climbing-falling pattern repeats, what is the **time taken** for the monkey to reach the top of the pillar?
   A. 20 minutes
   B. 19 minutes
   C. 15 minutes
   D. 10 minutes
6. Four boxes are compared on a balance.



Which of the four boxes is **lightest**?

A. Box E
B. Box D
C. Box C
D. Box A

7. The block pattern below has 1 block in the first tower, 4 blocks in the second tower, 9 blocks in the third tower and so on.
   How many blocks in all are needed to make the first seven towers in this pattern?



First tower Second tower Third tower

A. 49
B. 64
C. 120
D. 140

8. A 12-hour clock strikes once at 1 o'clock, twice at 2 o'clock, thrice at 3 o'clock and so on. How many times will the clock strike in 24 hours?

A. 24
B. 144
C. 156
D. 298

9. Alex's pen leaked on his addition homework, covering up three of the digits in the calculation shown.
How many different possibilities are there for the correct working?

5

A. 4
B. 3
C. 2

10. If 325×133=43225 *then* 324 ×132= _____

A. 43225 + 325 + 133

B. 43225 + 324 – 133

C. 43225 – 325 +133

D. 43225 – 324 – 133