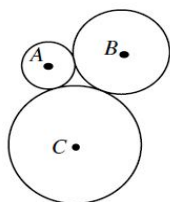


Q5) Three Circles have centres A,B and C with radii 2, 4 and 6 respectively. The circles are tangent to each other as shown. Triangle ABC has.

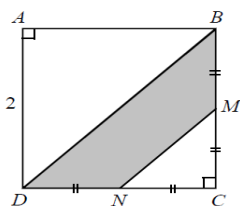


- (A) $\angle A$ obtuse (B) $\angle B = 90^\circ$ (C) $\angle A = 90^\circ$ (D) all angles acute (E) $\angle B = \angle C$

Q6) Given $a+2b+3c+4d+5e=k$ and $5a=4b=3c=2d=e$, find the smallest possible integer value for k so that a, b, c, d and e are all positive integers.

- (A) 87 (B) 522 (C) 10 (D) 120 (E) 60

Q7) In the diagram, square ABCD has side length 2 with M the midpoint of BC and N the midpoint of CD. The area of shaded region BMND is



- (A) 1 (B) $2\sqrt{2}$ (C) $\frac{4}{3}$ (D) $\frac{3}{2}$ (E) $4 - \frac{3}{2}\sqrt{2}$

Q8) The last digit (that is the unit digit) of $(2002)^{2002}$ is:

- (A) 4 (B) 2 (C) 8 (D) 0 (E) 6

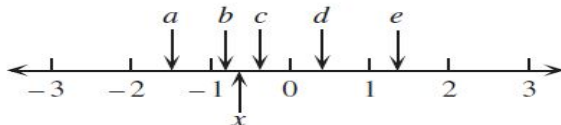
Q9) How many three digits positive integers are positive perfect square?

- (A) 23 (B) 22 (C) 21 (D) 20 (E) 19

Q10) In a sequence of positive numbers, each term after the first two terms is the sum of all of the previous terms. If the first term is a , the second term is 2 and the sixth term is 56, then the value of a is:

- (A) 1 (B) 2 (C) 3 (D) 4 (E) 5

Q11) If x is located on the number line as shown, which letter best corresponds the location of $-x^2$



- (A) a (B) b (C) c (D) d (E) e

Q12) Seven children, each with same birthday, were born in seven consecutive years. The sum of the ages of the young three children is 42. What is sum of the ages of the oldest three?

- (A) 51 (B) 54 (C) 57 (D) 63 (E) 60

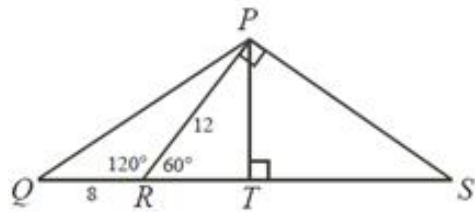
Q13) A test has ten questions. Points are awarded as follows:

- Each correct answer is worth 3 points.
- Each unanswered question is worth 1 point.
- Each incorrect answer is worth 0 point.

A total score that is not possible is?

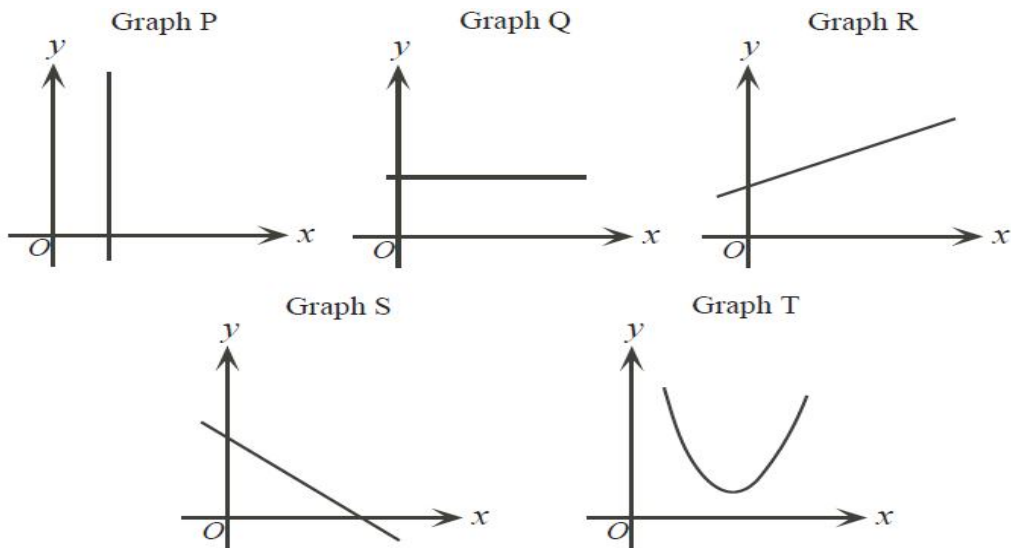
- (A) 11 (B) 13 (C) 17 (D) 23 (E) 29

Q14) In the diagram, R is on QS and QR = 8. Also, PR = 12, $\angle PRQ = 120^\circ$, and $\angle RPS = 90^\circ$. What is the area of ΔQPS ?



- (A) $72\sqrt{3}$ (B) 72 (C) 36 (D) $60\sqrt{3}$ (E) $96\sqrt{3}$

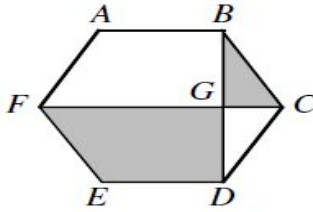
Q15) Which of the five graphs is linear with a slope of 0?



- (A) Graph P (B) Graph Q (C) Graph R (D) Graph S (E) Graph T

SECTION - B

Q16) In the regular hexagon ABCDEF, two of the diagonals, FC and BD, intersect at G. Find the ratio of area of quadrilateral FEDG to the area of $\triangle BCG$.



Q17) For the system of equations $x^2+x^2y^2+x^2y^4 = 525$ and $x+xy+xy^2 = 35$, Find the sum of real values that satisfy the equations.

Q18) Cindy leaves school at the same time every day. If she cycles at 20 km/h, she arrives home at 4:30 in the afternoon. If she cycles at 10 km/h, she arrives home at 5:15 in the afternoon. At what speed in km/h, must she cycle to arrive home at 5:00 in the afternoon?

Q19) When 100 is divided by 12, the remainder is 4. When 100 is divided by a positive integer x , the remainder is 10. Find the remainder when 1000 is divided by x .

Q20) In the subtraction shown, K, L, M, and N are digits what is the value of $K+L+M+N$?

$$\begin{array}{r} 5\ K\ 3\ L \\ -\ M\ 4\ N\ 1 \\ \hline 4\ 4\ 5\ 1 \end{array}$$

NOTE: The **Solution Key** of this paper will be available on School's blog www.crfpsrohini.blogspot.com today after 6 pm. The **Result** will be declared on 22 December (Date of Birth of Great Indian Mathematician Ramanujan) and will be available on School's blog.