IEM KOLKATA

Geometry

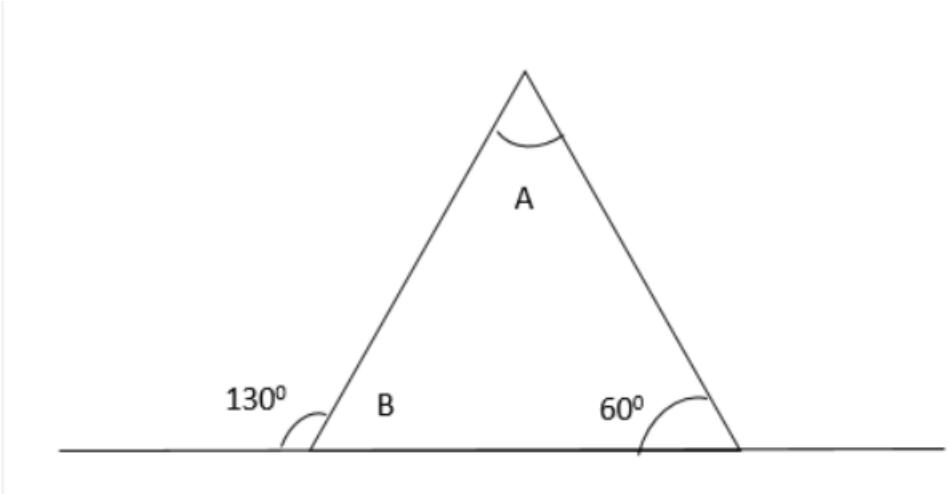
Instructor: Akash Bhattacharya

Q1) A circle is inscribed in a square. If the square has side length 14 cm, find the area of the circle. (Use $\pi = 22/7$)
A. 154 cm^2 B. 308 cm^2 C. 100 cm^2 D. 121 cm^2

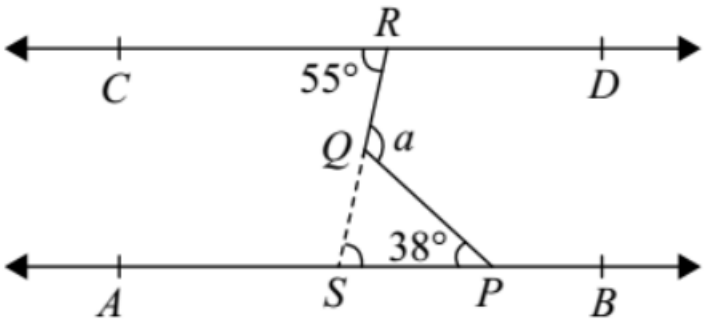
Q2) The sides of a triangle are in the ratio 3:4:5. If the perimeter is 36 cm, find the area.
A. 54 cm^2 B. 72 cm^2 C. 36 cm^2 D. 60 cm^2

Q3) A triangle has sides 6 cm, 8 cm, and 10 cm. What is its area?
A. 24 cm^2 B. 48 cm^2 C. 30 cm^2 D. 60 cm^2

Q4) What is the value of angle A in the given figure?

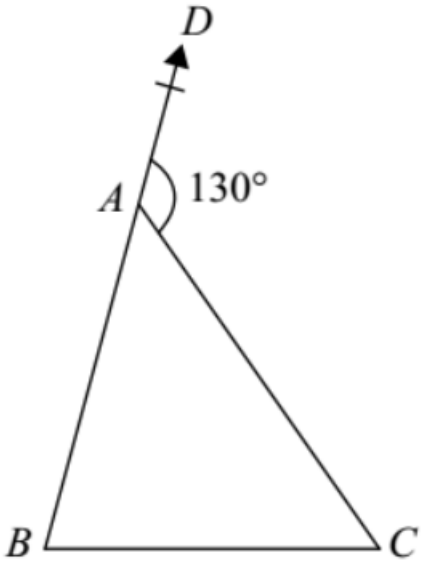


Q5) In fig., AB || CD, ∠a is equal to:



(a) 93° (b) 103° (c) 83° (d) 97°

Q6) In the following figure, ∠B : ∠C = 2 : 3, find ∠B + ∠C.



(a) 120° (b) 52° (c) 78° (d) 130°

Q7) In a triangle ΔXYZ, if 3∠X = 4∠Y = 5∠Z, then find the value of ∠X.

Q8) If the sides of a right triangle are x, x + 1 and x – 1, then the hypotenuse:
(a) 5 (b) 4 (c) 1 (d) 0

Q9) How many isosceles triangles with integer sides are possible such that sum of two of the side is 12?
(a) 11 (b) 6 (c) 17 (d) 23

Q10) Perimeter of a triangle with integer sides is equal to 15. How many such triangles are possible?
(a) 7 (b) 6 (c) 8 (d) 5

Q11) x, y, z are integer that are side of an obtuse-angled triangle. If $xy = 4$, find z.
(a) 2 (b) 3 (d) 1 (d) More than one possible value of z exists

Q12) A triangle has sides a^2, b^2 and c^2. Then the triangle with sides a, b, c has to be:
(a) Right-angled (b) Acute-angled (c) Obtuse-angled (d) Can be any of these three

Q13) Three villages P, Q, and R are located in such a way that the distance PQ = 13 km, QR = 14 km, and RP = 15 km, as shown in the figure. A straight road joins Q and R. It is proposed to connect P to this road QR by constructing another road. What is the minimum possible length (in km) of this connecting road? Note: The figure shown is representative.