Sub. : Maths	**Question Paper**	**Total Marks : 30**
Std. IX (CBSE)	**10 : Heron's Formula**	**Time : 1 Hr.**

Section A (Each 1 Marks)

Multiple choice Questions (MCQs)

Q.1 : Heron's formula is :

a) $\Delta = \sqrt{s(s+a)(s+b)(s+c)}$ b) $\Delta = \sqrt{s(s+a)(s-b)(s-c)}$

c) $\Delta = \sqrt{s(s-a)(s-b)(s-c)}, s = a+b+c$

d) $\Delta = \sqrt{s(s-a)(s-b)(s-c)}, 2s = a+b+c$.

Q.2 : The angles of a triangle are in the ratio 3 : 5 : 7, the triangle is :

a) An acute angled triangle   b) An obtuse angled triangle

c) A right triangle   d) An isosceles triangle.

Q.3 : The length of each side of an equilateral triangle having an area of $9\sqrt{3}$ cm^2 is.

a) 8cm   b) 36cm   c) 4cm   d) 6cm

Q.4 : If each side of a scalene Δ is doubled then area would be increased by

a) 300%   b) 50%   c) 25%   d) None

Q.5 : An isosceles right triangle has area 9cm^2. The length of its hypotenuse is.

a) $\sqrt{32}$cm   b) $\sqrt{16}$cm   c) $\sqrt{48}$cm   d) 6cm

Q.6 : Area of a triangle is equal to:

a) Base x Height   b) 2(Base x Height)

c) ½(Base x Height)   d) ½ (Base + Height)

Q.7 : The area of an equilateral triangle having side length equal to $\sqrt{3}/4$ cm (using Heron's formula) is:

a) 2/27 sq.cm   b) 2/15 sq.cm

c) $3\sqrt{3}/64$ sq.cm   d) 3/14 sq.cm

Q.8 : The base of a right triangle is 8 cm and the hypotenuse is 10 cm. Its area will be

a) $24 \, cm^2$

b) $40 \, cm^2$

c) $48 \, cm^2$

d) $80 \, cm^2$

Q.9 : If the area of an equilateral triangle is $16\sqrt{3} \, cm^2$, then the perimeter of the triangle is

a) 48 cm   b) 24 cm   c) 12 cm   d) 36 cm

For question number 10 to 11 two statement are given one labeled Assertion and other labeled Reason select the correct answer to these questions from the codes (a), (b), (c) and (d) as given below

a) both Assertion and reason are correct and reason is correct explanation for Assertion

b) both Assertion and reason are correct but reason is not correct explanation for Assertion

c) Assertion is true but reason is false.

d) both Assertion and reason are false.

Q.10 : **Assertion:** the area of an equilateral triangle having each side 4 cm is $4\sqrt{3} \, cm^2$

Reason: Area of an equilateral triangle $= (\sqrt{3}/4) \times a^2$

Q.11 : **Assertion:** The right angled triangle if hypotenus is $5\sqrt{2}$ cm then other two side equal to 5 cm each

Reason: in right angled triangle $base^2 + perpendicular^2 = hypotenus^2$

Section B (Each 2 Marks)

Q.12 : There is a slide in a park. One of its side walls has been painted in some colour with a message "KEEP THE PARK GREEN AND CLEAN". If the sides of the wall are 15m, 11m and 6m. Find the area painted in colour. (see figure)

Q.13 : The edges of a triangular board are 6 cm, 8 cm and 10 cm. Find the cost of painting it at ₹ 0.09 per cm².

OR

An umbrella is made by stitching 10 triangular pieces of cloth of two different colour (see figure) each piece measuring 20cm and 50cm and 50 cm. How much cloth of each colour is required for the umbrella?

Section C (Each 3 marks)

Q.14 : The triangular side-wall of a flyover have been used for advertisements. The sides of the walls are 122m, 22m and 120m (see figure). The advertisements yield an earning of ₹ 5000 per m² per year. A company hired one of its walls for 3 months, how much rent did it pay?
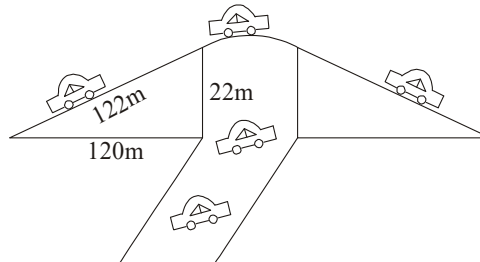
OR

A floral design on a floor is made up of 16 tiles which are triangular, the sides of the triangle being 9cm, 28cm, and 35cm (see in figure) find the cost of polishing the tiles at the rate of 50 P per cm².
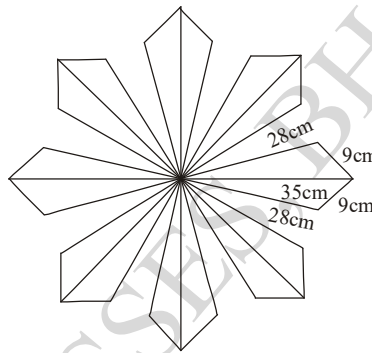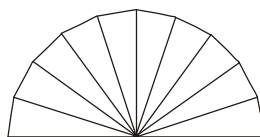

Q.15 : Calculate the area of the shaded region in the given figure.
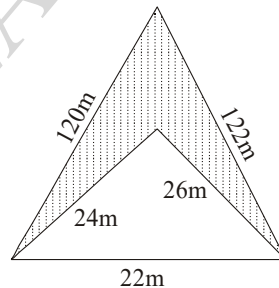
Section - D

Q.16 : A hand fan is made by stitching 10 equal size triangular strips of two different types of paper as shown in fig. The dimensiens of equal strips one 25 cm, 25 cm and 14 cm. Find the area of each type of paper needed to make the hand fan.

OR

If each side of a triangle is double, then find the ratio of area of the new triangle thus formed and the given triangle.

Q17 :   **Case Study 1 : (Any Four)**   **4**

A farmer has a triangular plot of land with a pond at the centre, which he uses to rear his cattle, sheep and poultry, as shown below.
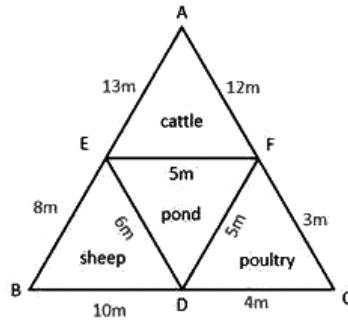
Now using the given information answer the following.

i)   **Find the area of field used for cattle rearing.**

   a) $30m^2$ b) $24m^2$ c) $12m^2$ d) $6m^2$

ii)   **Find the area of field used to raise sheep.**

   a) $30m^2$ b) $24m^2$ c) $12m^2$ d) $6m^2$

iii)   **Find the area of field used to raise poultry.**

   a) $30m^2$ b) $24m^2$ c) $12m^2$ d) $6m^2$

iv)   **Find the area of pond.**

   a) $30m^2$ b) $24m^2$ c) $12m^2$ d) $6m^2$

v)   **Find the cost of cleaning the pond at the rate of Rs.250 per m².**

   a)   Rs.7500   b)   Rs.6000   c)   Rs.3000   d)   Rs.1500

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