



TEST PAPER: MATHEMATICS

Time: 90 Minutes

Class: 9th I.C.S.E.

Max. Marks: 50 Marks

Date: 22nd July, 2018

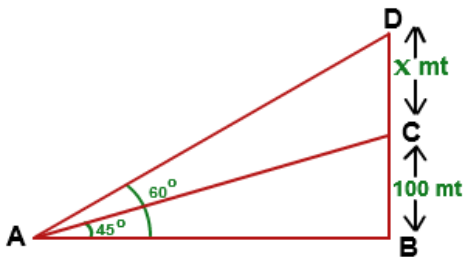
Marking Scheme: Four questions carry 10 marks each. Questions have 3 subparts each. Subparts (a) and (b) carry 3 marks each and subpart (c) carries 4 marks.

Question 1:

- A kite is flying at a height of 60 m above the ground. The string attached to the kite is temporarily tied to a point on the ground. The inclination of the string with the ground is 60° . Find the length of the string, assuming that there is no slack in the string.
- Rationalise:
 - $\frac{2}{\sqrt{5}+\sqrt{7}}$
 - $\frac{1}{1+\sqrt{7}}$
- Express 15.02222..... as a rational number.
 - By what number should we multiply $-\frac{15}{28}$, so that the product may be $-\frac{5}{7}$?

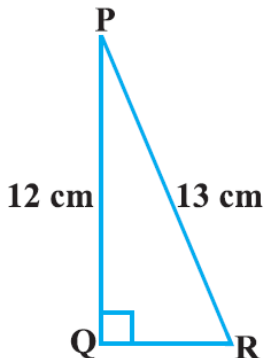
Question 2:

- If $A = 6^\circ$, find the value of $\sqrt{2}\cos(5A) + 6\sqrt{3}\tan(10A) + 3\sin(15A)$
- Find the value of $\frac{4}{3}\tan^2 60^\circ + 3\cos^2 30^\circ - 2\sec^2 30^\circ - \frac{3}{4}\cot^2 60^\circ$
- In the below figure, find x.



Question 3:

- Find $\tan P - \cot R$.



- A ladder of length 10 m is placed against the wall. At what distance from wall it should be kept to make it inclined at an angle of 60° from the ground?

- c. A helicopter is flying at a constant height from the ground. It makes an angle of 45° , when seen from a fixed point on the ground. After some time, when helicopter moves 2000 feet ahead, it is noted that it makes an angle of 60° from that fixed point. Calculate the height of the helicopter.

Question 4:

- a. Solve:

$$\frac{11}{\sqrt{8}} + \frac{15}{\sqrt{21}}$$

- b. If $\sec 5\theta = \operatorname{cosec}(\theta - 36^\circ)$, where 5θ is an acute angle, find the value of θ .
- c. The shadow of a tower standing on a level ground is found to be 40 m longer when the Sun's altitude is 30° than when it is 60° . Find the height of the tower.

Question 5:

- a. Evaluate $\sin 35^\circ \sin 55^\circ - \cos 35^\circ \cos 55^\circ$
- b. A circus artist is climbing a 20 m long rope, which is tightly stretched and tied from the top of a vertical pole to the ground. Find the height of the pole, if the angle made by the rope with the ground level is 30° .
- c. i. If $\sin B = 12/13$, then find $\cot B$.
ii. Express $1.3545454\dots$ as a rational number.