Some Applications of Trigonometry: Worksheet -2

1. A 1.6mt tall girl stands at a distance of 3.2mt from a lamp post and cuts a shade of 4.8mt on the ground. Then the height of the lamp base is [ ]

   a) 8mt b) 8.3mt c) $\frac{8}{3}$ mt d) $\frac{3}{8}$ mt

2. A balloon is connected to a meteorological ground station by a cable of length 215mt inclined at 60^o to the horizontal. Assuming that there is no slak in the cable then the height of the balloon from the ground is [ ]

   a) 188.4mt b) 180.4mt c) 184.4mt d) 186.19mt

3. An aeroplane flying horizontally 1km above the ground is observed at an elevation of 60^o. After 10 sec its elevation is observed to be 30^o, then the speed of the aeroplane is [ ]

   a) 415.68km/hr b) 310km/hr c) 315km/hr d) 315.86km/hr

4. A pole being broken by wind, the top struck the ground at an angle of 45^o and at a distance of 21mts from the foot of the pole, then height of the pole is [ ]

   a) $21\left(\sqrt{2}+1\right)$mts b) $\frac{21}{\sqrt{2}}$ mts c) 21mts d) $21\left(\sqrt{2}-1\right)$mts

5. The angles of depression from the top of a tower of height 40mts to the top and foot of a tree are 45^o and 60^o then height of the tree is [ ]

   a) $\frac{40}{3}\left(3-\sqrt{3}\right)$ b) $40\left(\sqrt{3}-1\right)$ c) $40\left(3-\sqrt{3}\right)$ d) $40\left(3+\sqrt{3}\right)$

6. A kite is flying with the string inclined at 60^o to the horizon. The height of the kite vertically above the ground when the string is 20mt long is [ ]

a) $15\sqrt{3}$ mts b) $20\sqrt{3}$ mts c) $10\sqrt{3}$ mts d) $5\sqrt{3}$ mts

7. The shadow of a tower standing on a level plane is found to be 60mts longer when the sun's altitude is 30^o than when it is 45^o, then the height of the tower is ____ in mts. [ ]

a) $30\left(\sqrt{3}-1\right)$ b) $\frac{30}{\sqrt{3}-1}$ c) $30\left(\sqrt{3}+1\right)$ d) $\frac{30}{\sqrt{3}+1}$

8. Two houses are standing on a level ground. From a point on the ground midway between them, the angles of elevation are 60^o and 30^o respectively. If the height of the first tower is 100m, then the height of the second tower is [ ]

a) 100mt b) $\frac{100}{3}$ mt c) $100\sqrt{3}$ mts d) $\frac{100}{\sqrt{3}}$ mts

9. If AB is a vertical pole. The end A is on the level ground. C is the middle point of AB. P is a point on the level ground. The portion CB subtends an angle of β at P. If AP = n AB then $\tan\beta$ = [ ]

a) $\frac{2n^2+1}{n}$ b) $\frac{2n^2-1}{n}$ c) $\frac{n}{2n^2+1}$ d) $\frac{n}{2n^2-1}$

10. The angle of elevation of a jet plane from a point A on the ground is 60^o. After a flight of 15sec the angle of elevation changes to 30^o. If the jet plane is flying at a constant height of $1500\sqrt{3}$, then the speed of the jet plane in km/hr [ ]

a) 200 b) 840 c) 950 d) 1050