ST. LAWRENCE HIGH SCHOOL

A Jesuit Christian minority Institution

Subject: Mathematics **Class- X** **Date:16/05/2020**

Answer key of Worksheet-29

Chapter- Heights and Distance

Topic- Application of Heights And Distance

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1. Choose the correct alternative. (Red coloured and underlined options are the correct ones) 1x15=15
   a) An observer 2 m tall is $10\sqrt{3}$m away from a tower. The angle of elevation from his eye to the top of the tower is 30°. Find height of the tower.
      i) 14 m ii) 12 m iii) 10 m iv) none of these
   b) From a point P on the ground level,the angle of elevation of the top of a tower is 30°. The tower is 200 m high, the distance of point P from the foot of the tower is
      i) 346 m ii) 400 m iii) 298 m iv) 312 m
   c) The angle of elevation of a ladder leaning against a wall is 60° and the foot of the ladder is 12.4 m away from the wall. The length of the ladder is.
      i) 14.8 m ii) 6.2 m iii) 12.4 m iv) 24.8 m

d)The top of a 15 m high tower makes an angle of elevation of 60° with the bottom of an electronic pole and angle of elevation of 30° with the top of the pole. What is the height of the electric pole?

i)12 m ii) 5 m iii) 8 m iv) 10 m

e) On the same side of a tower , two objects are located. Observed from the top of the tower , their angles of depression are 45° and 60°. If the height of the tower is 600 m, find the distance between the objects. ($\sqrt{3}$ = 1.732)

i) 272 m ii) 254 m iii) 288 m iv) 284 m

f) A ladder 10 m long just reaches the top of a wall and makes an angle of 60° with the wall. Find the distance of the foot of the ladder from the wall. ($\sqrt{3}$= 1.732)

i) 5 m ii) 17.3 m iii) 8.65 m iv) 4.32 m

g) From a tower of 80 m high, the angle of depression of a bus is 30°. How far is the bus from tower?

i)138. 4 m ii) 40 m iii) 160 m iv) 46.24 m

h) The angle of elevation of the top of a lighthouse 60 m high, from two points on the ground on its opposite sides are 45 °and 60°. What is the distance between two points?

i)30 m ii) 94.6 m iii) 45 m iv) none of these

i) From the top of a hill 100 m high, the angles of depression of the top and bottom of a pole are 30° and 60° respectively. What is the height of the pole?

i) 52 m ii) 66.67 miii) 50 m iv) 33.33 m

j) To a man standing outside his house, the angles of elevation of the top and bottom of a window are 60° and 45° respectively. If the height of the man is 180 cm and he is 5 m away from the wall, what is the length of the window?

i) 3.65 mii) 2.5 m iii) 8.65 m iV) 2 m

k)Find the angle of elevation of the sun when the shadow of a pole of 18 m height is $6\sqrt{3}\ m$ long.

i) 30° ii) 60°iii) 45° iv) none of these

l) An observer 1.6 m tall is $20\sqrt{3}\ m$ away from a tower. The angle of elevation from his eye to the top of the tower is 30°. The height of the tower is

i) 21.6 m ii) 23.2 m iii) 24.72 m iv) none of these

m)The distance between two pillars of length 16 m and 9 m is x metres. If two angles of elevation of their respective top from the bottom of the other are complementary angles. Find the value of x

i)15 m ii) 16 m iii) 12 miv) none of these

n) The angle of elevation of the top of a tower from a point A on the ground is 30°. On moving a distance of 20 m towards the foot of the tower to a point B, angle of elevation increases to 60°. The angle of the tower is

i) $\sqrt{3}\ m$ ii) $5\sqrt{3}$ m iii) $10\sqrt{3}$m iv) none of these

o) Two poles of equal height are standing opposite to each other on either side of a 100 m wide road. From a point between them on road, angle of elevation of their tops are 30 °and 60° respectively . The height of each pole is

i) 20 m ii) 25 miii) $25\sqrt{3}\ m$ iv) none of these

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