ST. LAWRENCE HIGH SCHOOL

A Jesuit Christian minority Institution

Subject: Mathematics **Class- X** **Date:14/05/2020**

Answer key of Worksheet-27

Chapter- Heights and Distance

Topic- Basic concepts of Heights and Distance

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1. Choose the correct alternative. (Red coloured underlined option is the correct one) 1x15=15

a) A man is standing at point A and looking at the top of a tank. It makes the angle of elevation 30 with the man's eye. Distance between the man and the bottom of the tank is 120 m. Find height of the tank.

i)$(40\sqrt{3}$ + height of the man) m ii)$120\sqrt{3}$ m iii) $40\sqrt{3}$ m iv) none of these

b) If a tower that is 30 m high casted a shadow $10\sqrt{3}$ m long on the ground,then what is the angle of elevation of the sun?

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

C)Two ships are sailing in the sea on the two sides of a lighthouse. The angle of elevation of the top of the lighthouse is observed from the ships are 30º and 45º respectively. If the lighthouse is 100 m high, the distance between the two ships is:

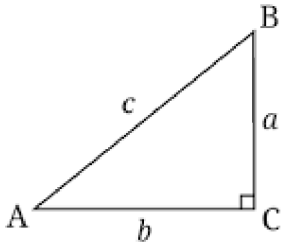
i) 173 m ii) 273 m iii) 200 m iv) 300 m

d)A man standing at a point P is watching the top of a tower, which makes an angle of elevation of 30º with the man's eye. The man walks some distance towards the tower to watch its top and the angle of the elevation becomes 45º. What is the distance between the base of the tower and the point P?

i) 9 units ii) 12 units iii)$3\sqrt{3}$ units iv) data inadequate

e)In the adjacent figure Angle A = 30° and AB=150 m

find BC.



i) 100 m ii) 75 m iii) 50 m iv) none of these

f) A tree was broken and fallen on the ground due to storm. It has fallen 4 m away from the bottom of the tree and made 45° angle with the ground.Find the length of the tree.

i) $4\sqrt{4}m$ *ii*) $(4+\sqrt{2}\ )m$ *iii*)$(4+4\sqrt{2})$ m iv) none of these

g) Shadow of a Palm tree with$12\sqrt{3}$ m is 36 m. Find the angle of elevation of the sun.

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

h)If the height of a vertical pole is equal to the length its shadow. Find the angle of elevation of the sun.

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

i)Find the angle of elevation of the sun when the length of the shadow of a tree is $\sqrt{3}$ times the height of the tree.

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

j) A 30 m ladder is placed against a 15 m long wall so that it reaches top of the wall. Then elevation of the wall is

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

k) John saw a house in the adjacent valley standing on the top of a vertical cliff at an angle of depression 60°. The cliff is 60 m tall. How far is the house from the base of the cliff?

i) $10\sqrt{3}m$ *ii*) $20\sqrt{3}\ m$ *iii*) $60\sqrt{3}\ \ m$ *iv*) *none of these*

l)If angle of elevation of the sun is 45° and length of the shadow of the coconut tree in a pond is 18 m. Find the actual length of the coconut tree.

i) 18 m ii) 20 m iii)$18\sqrt{3}\,m$ *iv*) *none of these*

m)The height of an observer is h meters. He stands on a horizontal ground at a distance $\sqrt{3}$ h metres from a vertical wall of height 4h metres. Find the angle of elevation of the top of the wall as seen by the observer.

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

n) when the angle of elevation increases from 30° to 60°, the shadow of a tower decreases by 50 m. Find the height of the tower.

i) 20 m ii) 30 m iii) 25 m iv) none of these

o)The angle of depression of a point situated at a distance of 70 m from the base of a tower is 60°. The height of the tower is

i) $70\sqrt{3}$ m $ii)\frac{70\sqrt{3}}{3}$ m $iii)\ 70\ m$ $iv)\ none\ of\ these$

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