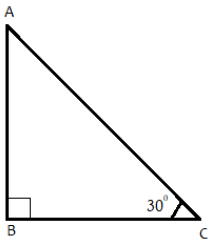
Some applications of Trigonometry

I – Choose the correct alternative and write the complete answer along with its letter of alphabet.

1. In the following figure AB ⊥ BC and $\angle ACB = 30^0$, given that BC = $\sqrt{300}$ .The length of AB is:

A] 10m B] 100m
C] $10\sqrt{3}$ m D] $100\sqrt{3}m$



2. If a vertical pole of length 6m casts a shadow 4m long of the ground and at the Same time a tower casts a shadow 28 m long, then the height of the tower is:
A] 42 m B] 21m C] 12m D] 45 m

3. The ratio of the lengths of a tree and its shadow is 1 : $\frac{1}{\sqrt{3}}$. The angle of elevation of sun is:
A] 30^0 B] 45^0 C] 60^0 D] 90^0

4. The angle of elevation of the top of a tower from a point of the ground, which is 30 m away from the foot of a tower of height $10\sqrt{3}$ m, is:
A] 45^0 B] 60^0 C] 30^0 D] 90^0

5. The angle formed by the line of sight with the horizontal, when the point being viewed is above the horizontal level is called:
A] Vertical angle B] Angle of depression
C] Angle of elevation D] Obtuse angle.

6. If altitude of the sun is 60^0, the height of a tower which casts a shadow of length 30 m is:
A] 30 $\sqrt{3}$m B] 15 m C] $\frac{30}{\sqrt{3}}$ m D] $15\sqrt{2}$ m

7. The ratio of the length of a pole and its shadow is 1 : $\sqrt{3}$. The angle of elevation of the sun is:
A] 90^0 B] 60^0 C] 30^0 D] 45^0

8. A ladder of 10 m length touches a wall at height of 5m. The angle θ made by It with the horizontal is
A] 90^0 B] 60^0 C] 45^0 D] 30^0

9. The measure of angle of elevation of top of tower $75\sqrt{3}$ m high from a point at a distance of 75 m from foot of tower in a horizontal plane is:
A] 30^0 B] 60^0 C] 90^0 D] 45^0

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10. A pole 6 m high casts a shadow $2\sqrt{3}\ m$ long on the ground, then the sun's elevation is

A] 45^0 B] 30^0 C] 60^0 D] 90^0

11. A pole 10 m high cast a shadow 10 m long on the ground, then the sun's elevation is

A] 60^0 B] 45^0 C] 30^0 D] 90^0

12. If the altitude of the sun is 60^0, the height of a tower which casts a shadow Of length 30 m is:

A] $30\sqrt{3}$ m B] $\frac{30}{3}\sqrt{3}$ m C] $15\sqrt{3}$ m D] 15 m

13. If the ratio of height of a tower and the length of its shadow on the ground is $\sqrt{3}$: 1, then the angle of elevation of the sun is

A] 60^0 B] 45^0 C] 30^0 D] 90^0

14. The length of the string of a kite flying at 100 mts above the ground with the elevation of 60^0 is:

A] 100 m B] $100\sqrt{2}$ m C] $\frac{200}{\sqrt{3}}$ m D] 200 m

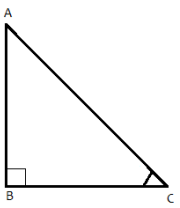
15. The length of the shadow of a 20 m tall pole, on the ground when the sun's elevation is 45^0 is:

A] 20 m B] $20\sqrt{2}$m C] 50 m D] $40\sqrt{2}$ m

16. When the angle of elevation of sun is 30^0 the length of the shadow cast by 50 m high building is.

A] $\frac{50}{\sqrt{3}}$ m B] $50\sqrt{3}$ m C] $25\sqrt{3}$m D] $100\sqrt{3}$m

17. If AB = 4 m and AC = 8m, then angle of elevation of A as observed from C is.



A] 60^0 B] 30^0
C] 45^0 D] Cannot be determined

18. If the angle of depression of an object from a 75 m high tower is 30^0, then the distance of the object from the base of tower is

a] $25\sqrt{3}$ m B] $50\sqrt{3}$ m C] $75\sqrt{3}$ m D] 150m

19. The ratio of the length of a rod and its shadow is 1 : $\sqrt{3}$, then the angle of elevation of the sun is:

A] 30^0 B] 45^0 C] 60^0

20. A tree casts a shadow 4 m long on the ground, when the angle of elevation Of the sun is 45^0. The height of the tree (in metres) is:

A] 3 B] 4 C] 4.5 D] 5.2

21. The angle of depression from the top of a tower 12 m high, at a point on the ground is 30^0. The distance of the point from the top of the tower is:

A] 12 m B] 6 m C] $12\sqrt{3}$ m D] 24 m

22. If a pole of height 6 m casts a shadow $2\sqrt{3}$ long on the ground, then the Sun's elevation is:

A] 30^0 B] 60^0 C] 45^0 D] 90^0

23. The angle of elevation of the top of a tower from a point on the ground is 45^0. If the observer is 42 m away from the foot of the tower, the height of the tower is

A] 63 m B] 21 m C] 84 m D] 42 m

24. If the height and length of the shadow of a man are the same, then the angle of elevation of the sun is

A] 30^0 B] 60^0 C] 45^0 D] 15^0

25. If sun's elevation is 60^0 then a pole of height 6 m will cast a shadow of length.

A] $6\sqrt{3}$ m B] $\sqrt{3}\ m$ C] $2\sqrt{3}$ m D] $3\sqrt{2}$ m