Some Applications of Trigonometry Quiz

1. The angle of elevation of the top of a tower from a point on the ground is 30°. If the distance from the point to the foot of the tower is 50 m, the height of the tower is:
A) 25 m
B) 50 m
C) 50√3 m
D) 25√3 m

2. If the angle of depression from a point A to point B is 45°, and AB is 100√2 m, the height of point B from A is:
A) 100 m
B) 200 m
C) 50√2 m
D) 100√2 m

3. The shadow of a pole is √3 times the height of the pole. The angle of elevation of the sun is:
A) 30°
B) 45°
C) 60°
D) 75°

4. From the top of a 7m high building, the angle of elevation of the top of a cable tower is 60° and the angle of depression of its foot is 45°. The height of the tower is:
A) 7(√3 + 1) m
B) 7(√3 1) m
C) 14 m
D) 7√3 m

5. The angle of elevation of a ladder leaning against a wall is 60°. The distance of the foot of the ladder from the wall is 2.5 m. The length of the ladder is:
A) 2.5 m
B) 5 m
C) 5√3 m
D) 2.5√3 m

6. A tree breaks due to a storm and the broken part bends so that the top of the tree touches the ground making an angle of 30° with it. The distance between the foot of the tree to the point where the top touches the ground is 8 m. The height of the tree before it broke was:
A) 8 m
B) 8√3 m
C) 16 m
D) 4√3 m

7. A boy is flying a kite with a string 100 meters long. If the string makes an angle π/3 radian with the ground level, the height of the kite above the ground is approximately (assuming √3 = 1.732):
A) 86.6 m
B) 50 m
C) 100 m
D) 173.2 m

8. The angle of elevation of the sun, when the length of the shadow of a tree is equal to the height of the tree, is:
A) 30°
B) 45°
C) 60°
D) 90°

9. To measure the height of a building, a surveyor moves 50 meters away from the building and then, with a sextant, measures the angle of elevation to the top of the building to be 45°. The height of the building is:
A) 50 m
B) 50√2 m
C) 50√3 m
D) 100 m

10. The horizontal distance from a point to the base of a tower is three times the height of the tower. The angle of elevation from that point to the top of the tower is approximately:
A) 18.4°
B) 30°
C) 45°
D) 60°

11. If the angle of elevation of the top of a pole from a point on the ground is 60°, and the pole is 6√3 meters tall, the distance from the point to the pole is:
A) 6 m
B) 12 m
C) 18 m
D) 36 m

12. A kite is flying at a height of 75 meters, and the string is released from the point on the ground is at an angle of 30°. The length of the string is:
A) 75 m
B) 150 m
C) 75√3 m
D) 150√3 m

13. A person standing at

a certain point observes the top of a pole with an angle of elevation of 30°. If the person moves 40 meters closer, the angle of elevation increases to 45°. The height of the pole is:
A) 40 m
B) 40√2 m
C) 40√3 m
D) 80 m

14. A bird is sitting on the top of a tree, which is 20 meters high. The angle of depression from the bird to a stone on the ground is 45°. The horizontal distance between the tree and the stone is:
A) 20 m
B) 20√2 m
C) 10 m
D) 10√2 m

15. A slide 5 meters long reaches from the top of a slide to the ground with an angle of 30°. The vertical height of the slide is:
A) 2.5 m
B) 5 m
C) 2.5√3 m
D) 5√3 m

16. An airplane is flying at an altitude of 1500 m above the ground. The angle of depression from the plane to a point on the ground is 30°. The horizontal distance from the plane to that point on the ground is:
A) 1500 m
B) 1500√3 m
C) 3000 m
D) 3000√3 m

17. If the angles of elevation of the top of a tower from two points at a distance a and b (a < b) from the base and in the same straight line with it are complementary, then the height of the tower is:
A) √(ab)
B) (a + b)/2
C) (a b)/2
D) ab/(a + b)

18. The shadow of a tower standing on a level plane is found to be 40 meters longer when the sun's altitude is 30° than when it is 60°. The height of the tower is:
A) 20(√3 1) m
B) 40(√3 1) m
C) 20(√3 + 1) m
D) 40(√3 + 1) m

19. From the top of a cliff 150 m high, the angles of depression of two ships are 30° and 45°. If the ships are on the opposite sides of the cliff, the distance between the ships is approximately:
A) 150(√3 + 1) m
B) 150(√3 1) m
C) 300(√3 + 1) m
D) 300(√3 1) m

20. A ladder placed against a wall reaches a window which is 12 m above the ground. The ladder is inclined at an angle of 60° to the ground. The length of the ladder is:
A) 12 m
B) 24 m
C) 12√3 m
D) 24√3 m

Here is the answer key for the "Some Applications of Trigonometry" quiz:

1. D) 25√3 m
2. A) 100 m
3. A) 30°
4. A) 7(√3 + 1) m
5. C) 5√3 m
6. B) 8√3 m
7. A) 86.6 m
8. B) 45°
9. A) 50 m
10. B) 30°
11. A) 6 m
12. B) 150 m
13. A) 40 m
14. A) 20 m
15. A) 2.5 m
16. A) 1500 m
17. A) √(ab)
18. B) 40(√3 1) m
19. D) 300(√3 1) m
20. C) 12√3 m

If you are ready, we can proceed to the next chapter's quiz.