Extra Content for Foundation GCSE

118. Geometry & Trigonometry – Applying Pythagoras' Theorem

Practice Questions

1. State Pythagoras' Theorem.
2. A right-angled triangle has legs of 6 cm and 8 cm. Find the hypotenuse.
3. A ladder leans against a wall. The ladder is 5 m long, and the base is 3 m away from the wall. Find the height it reaches on the wall.
4. Find the missing side: a right-angled triangle has hypotenuse 13 cm and one leg 5 cm.
5. A square has diagonal 10 cm. Find the length of each side.
6. A triangular garden has a base of 9 m and height of 12 m. Find the diagonal path from one corner to the opposite.
7. A rectangle has width 8 cm and diagonal 17 cm. Find the missing length.
8. A ladder is 12 m long and leans against a wall at a height of 9 m. How far is the base from the wall?
9. A triangle has sides 5 cm and 12 cm. The hypotenuse is missing. Find it.
10. A square has sides of 7 cm. Find its diagonal.

Scenario Questions

1. A firefighter's ladder is 10 m long and reaches a 9 m height on a building. How far is the base from the wall?
2. A TV screen has a width of 48 cm and height of 36 cm. Find the screen's diagonal.
3. A football field is 100 m long and 60 m wide. Find the diagonal distance across the field.
4. A ramp is built at a 3 m rise and 4 m base. Find the ramp's length.
5. A drone flies 300 m north and then 400 m east. How far is it from its starting point?
6. A rectangular garden measures 20 m by 15 m. Find the diagonal distance across it.
7. A skateboard ramp is 8 m long, and the base is 6 m. Find the ramp's height.
8. A zip line is installed between two points 25 m apart horizontally and 20 m vertically. Find the length of the zip line.
9. A road slopes 10 m up over a horizontal distance of 24 m. Find the total road length.
10. A triangular flag has sides of 9 m and 12 m. Find the longest side.

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Practice Questions

1. Pythagoras' Theorem: $a^2 + b^2 = c^2$, where c is the hypotenuse.
2. Hypotenuse: 10 cm
3. Height: 4 m
4. Missing side: 12 cm
5. Side length: $\frac{10}{\sqrt{2}}$ cm or approximately 7.07 cm
6. Diagonal path: 15 m
7. Missing length: 15 cm
8. Distance from the wall: $\sqrt{63}$ m or approximately 7.94 m
9. Hypotenuse: 13 cm
10. Diagonal: $7\sqrt{2}$ cm or approximately 9.90 cm

Answers

Scenario Questions

1. Distance from the wall: $\sqrt{19}$ m or approximately 4.36 m
2. Diagonal: 60 cm
3. Diagonal distance: $\sqrt{13600}$ m or approximately 116.62 m
4. Ramp's length: 5 m
5. Distance from starting point: 500 m
6. Diagonal distance: 25 m
7. Ramp's height: $\sqrt{28}$ m or approximately 5.29 m
8. Length of the zip line: $\sqrt{1025}$ m or approximately 32.02 m
9. Total road length: 26 m
10. Longest side: 15 m