

PYTHAGORAS THEOREM

Among the many names from the history of mathematics, only a few have the same depth as that of the ancient Greek mathematician and philosopher Pythagoras. Pythagoras was born in about 570 BCE on the island of Samos and founded a religious movement that unified mystic teaching with mathematical accomplishments. The Pythagorean Theorem is one of his lasting contributions to prove that mathematical principles are eternal.

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Q1: What is the formula for the Pythagorean Theorem if 'a' and 'b' are the shorter sides of the triangle?

- A: $c^2 = a^2 - b^2$
 - B: $a^2 + b^2 = c^2$
 - C: $c = a + b$
 - D: $a = b + c$
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Q2: If the sides of a right-angled triangle are 5 and 12, what is the length of the hypotenuse?

- A: 17
 - B: 13
 - C: 11
 - D: 10
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Q3: Which of the following is a Pythagorean triple?

- A: (4, 5, 6)
 - B: (3, 4, 5)
 - C: (5, 6, 7)
 - D: (7, 8, 9)
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Q4: In practical life, what is the relevance of the Pythagorean Theorem?

- A: Limited to academic exercises
 - B: Primarily used in art
 - C: Widely utilized in different industries.
 - D: Relevant only within Greek and Roman architecture.
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Q5: In a right-angled triangle, when one of the angles is 90 degrees, what is the connection of the Pythagorean theorem between the sides?

- A: It gives the proportion of the sides.
 - B: It determines the total length of the sides.
 - C: It relates the angles of the triangle.
 - D: It establishes a basic geometric relationship.
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Q6: Which area of mathematics heavily leverages the Pythagorean Theorem as a springboard to foundational equations and correlations between angles and sides?

- A: Calculus
 - B: Algebra
 - C: Trigonometry
 - D: Geometry
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Q7: What is the hypotenuse if the side length of a right-angled triangle is 8 and 15?

- A: 17
 - B: 13
 - C: 20
 - D: 10
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Q8: What is a Pythagorean triple?

- A: A set of three integers satisfying the Pythagorean Theorem
 - B: A sequence of prime numbers
 - C: Three consecutive odd numbers
 - D: A set of numbers with no mathematical relationship
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Q9: Which of the following statements is true about the Pythagorean Theorem?

- A: It only applies to equilateral triangles.
 - B: It can be used in any type of triangle.
 - C: It is only applicable to triangles with acute angles.
 - D: It is limited to right-angled triangles.
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Q10: How is the Law of Cosines connected to the Pythagorean Theorem?

- A: Proving the Pythagorean Theorem
 - B: Extending the theorem to non-right-angled triangles
 - C: Calculating the area of a triangle
 - D: Deriving trigonometric functions
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Answers

Q1: B - $a^2 + b^2 = c^2$

Q2: A - 17

Q3: B - (3, 4, 5)

Q4: C - Widely utilized in different industries.

Q5: D - It establishes a basic geometric relationship.

Q6: C - Trigonometry

Q7: A - 17

Q8: A - A set of three integers satisfying the Pythagorean Theorem

Q9: B - It can be used in any type of triangle.

Q10: B - Extending the theorem to non-right-angled triangles