

# MATH Exam Paper

## Subjective Questions

1. What is the Pythagorean theorem and explain its application?

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Answer:

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2. Derive the quadratic formula from the general form of a quadratic equation.

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Answer:

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3. Explain the concept of limits in calculus.

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Answer:

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4. Solve the following system of equations using substitution method:  $2x + y = 10$  and  $3x - y = 5$ .

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Answer:

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5. What are eigenvalues and eigenvectors? Provide an example.

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Answer:

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6. Describe the difference between permutations and combinations.

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Answer:

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7. What is the fundamental theorem of algebra?

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Answer:

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8. Explain how the binomial theorem can be used to expand expressions.

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Answer:

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9. Find the derivative of the function  $f(x) = x^3 + 5x^2 - 2x + 7$ .

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Answer:

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10. Explain the concept of mathematical induction and prove the sum formula for the first  $n$  integers.

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Answer:

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11. Formula of circle?

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Answer:

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12. What is the formula of a triangle?

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Answer:

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### MCQ Questions

13. What is  $2 + 2$ ?

a) 3

b) 4

c) 5

d) 6

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14. What is the derivative of  $x^2$ ?

a) 1

b)  $2x$

c)  $x^2$

d)  $2x^2$

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15. Solve for x:  $5x - 10 = 0$

a)  $x = 0$

b)  $x = 2$

c)  $x = 10$

d)  $x = -2$

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16. What is the value of pi?

a) 3.14

b) 3.1416

c) 3.14159

d) 3.141

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17. What is the area of a circle with radius 3?

a)  $9\pi$

b)  $6\pi$

c)  $3\pi$

d)  $\pi$

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