

ELLIPSE

Ellipses are special shapes in geometry that look like elongated versions of circles. A unique property of ellipses is that when you add up the sum of distances from an end on the ellipse to the foci or two stable ends, it will be constant. Ellipses have a crucial part to play in the field of geometry, like major axes, minor axes, foci, and more. These geometrical functions make ellipses useful in an array of everyday applications in fields like astronomy, optics, architecture, engineering, etc.

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Q1: What is the formula for the semi-major axis (a) of an ellipse?

- A: $a = b / 2$
 - B: $a = c / 2$
 - C: $a = (b + c) / 2$
 - D: $a = (b * c) / 2$
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Q2: What is the eccentricity of a circle?

- A: 0
 - B: 1
 - C: 0.5
 - D: It varies depending on the circle's size
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Q3: How many foci does an ellipse have?

- A: One
 - B: Two
 - C: Three
 - D: It varies based on the eccentricity
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Q4: What is an ellipse?

- A: The midpoint of all the ends on a plane whose distances from one stable end in the plane are stable.
 - B: The midpoint of all the ends on a plane whose distances from two stable ends in the plane are not stable.
 - C: The midpoint of an end on a plane whose distance from three stable ends in the plane is stable.
 - D: The midpoint of all the ends on a plane whose distances from two stable ends in the plane are stable.
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Q5: Which one of the following are elements of an ellipse?

- A: Major Axis
 - B: Minor Axis
 - C: Both a and b
 - D: None of the above
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Q6: The correct definition of a major axis is:

- A: The longest straight line that passes through the midpoint of the ellipse.
 - B: A line crossing an ellipse.
 - C: A line in an ellipse.
 - D: The radius of an ellipse.
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Q7: What is eccentricity?

- A: Similarity between ellipse and circle
 - B: The scale of digression of an ellipse from a circle
 - C: Similarity between ellipse and oval
 - D: Similarity between oval and circle
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Q8: The correct definition of ellipse duality is:

- A: The minor axis of an ellipse aligns with the polar line of the polar ellipse
 - B: The major axis of an ellipse aligns with the polar line of the polar ellipse
 - C: An ellipse aligns with the polar ellipse
 - D: None of the above
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Q9: The correct representation of the formula for the semi-major axis is:

- A: Semi-Major Axis = Length of the Major Axis
 - B: Semi-Major Axis = Double the length of the Major Axis
 - C: Semi-Major Axis = Half of the degree of the Major Axis
 - D: Semi-Major Axis = Half of the length of the Major Axis
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Q10: What is the concept of ellipse duality?

- A: When the major axis of an ellipse intersects with the polar line of the polar ellipse, both the ellipses generate from a focus.
 - B: When the major axis of an ellipse aligns with the polar line of the polar ellipse, both the ellipses generate from a focus.
 - C: When the major axis of an ellipse does not align with the polar line of the polar ellipse, both the ellipses generate from a focus.
 - D: None of the above
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Answers

Q1: $C - a = (b + c) / 2$

Q2: A - 0

Q3: B - Two

Q4: D - The midpoint of all the ends on a plane whose distances from two stable ends in the plane are stable.

Q5: C - Both a and b

Q6: A - The longest straight line that passes through the midpoint of the ellipse.

Q7: B - The scale of digression of an ellipse from a circle

Q8: B - The major axis of an ellipse aligns with the polar line of the polar ellipse

Q9: D - Semi-Major Axis = Half of the length of the Major Axis

Q10: B - When the major axis of an ellipse aligns with the polar line of the polar ellipse, both the ellipses generate from a focus.