CLASS 11 MATHS EXTRA QUESTIONS

Class 11 Maths Chapter 10 Conic Sections – Extra Questions with Answers

Extra practice questions for Class 11 Maths Chapter 10 (Conic Sections), beyond the textbook. These Class 11 Maths Chapter 10 important questions are handy for last-minute exam practice.

Contents

Extra practice questions for Class 11 Maths Chapter 10 (Conic Sections), beyond the textbook. These Class 11 Maths Chapter 10 important questions are handy for last-minute exam practice.

Very Short Answer Questions (1 mark)

Q1. Write the equation of a circle with centre (2,3) and radius 5.
Ans: $(x-2)^2+(y-3)^2=25$.

Q2. What shape is formed when a plane cuts a cone parallel to its slant side?
Ans: A parabola.

Q3. How many foci does an ellipse have?
Ans: Two.

Q4. Write the standard equation of a parabola opening to the right, vertex at origin.
Ans: $y^2=4ax$.

Q5. What is constant for points on a hyperbola relative to its foci?
Ans: The absolute difference of distances to the two foci.

Short Answer Questions (2–3 marks)

Q6. Find the centre and radius of the circle $x^2+y^2-4x-6y+9=0$ by completing the square.
Ans: $(x^2-4x) + (y^2-6y) = -9$. Completing the square: $(x-2)^2-4 + (y-3)^2-9 = -9$, so $(x-2)^2+(y-3)^2=4$. Centre = (2,3), radius = 2.

Q7. For the ellipse $x^2/25 + y^2/9 = 1$, find the values of a and b, and identify which axis is longer.
Ans: $a^2=25$, so $a=5$; $b^2=9$, so $b=3$. Since $a>b$, the major (longer) axis is along the x-axis.

Q8. Explain, in your own words, how a circle can be considered a special case of an ellipse.
Ans: A circle is an ellipse where both axes are equal in length (a=b), meaning the two foci coincide at a single central point. So a circle is the special case of an ellipse where a=b=r (the radius).

Higher-Order Thinking / Application Questions

Q9. A satellite dish has a parabolic cross-section designed so that incoming signals reflect to a single focal point. If the equation of the parabola's cross-section is $y^2=8x$, find the coordinates of the focus, and explain why this focusing property makes parabolas useful for satellite dishes.
Ans: Comparing $y^2=8x$ with $y^2=4ax$ gives $4a=8$, so $a=2$. The focus is at (a,0) = (2,0). This focusing property is useful because parallel incoming signals (like radio waves from a distant satellite) that strike the parabolic surface all reflect toward this single focal point, allowing the receiver placed there to collect all the concentrated signal, maximising reception strength.

Q10. Explain, using the defining property of an ellipse (constant sum of distances to two foci), why the "string and two pins" method can be used to draw a perfect ellipse by hand.
Ans: If a string of fixed length is looped around two pins (representing the foci) and a pencil is used to pull the string taut while tracing around them, the total length of string from the pencil to each pin remains constant throughout the tracing (since the string length itself doesn't change). This is exactly the defining property of an ellipse — the sum of distances from any point on the curve to the two foci is constant — so tracing with this fixed total distance naturally produces a perfect ellipse.

Class 11 Maths Chapter 10 – Solutions and Notes

For complete step-by-step answers and a quick summary, check the Class 11 Maths Chapter 10 Solutions and Class 11 Maths Chapter 10 Revision Notes.

See also: Chapter 2 | Chapter 3 | Chapter 4 | Chapter 5 | Chapter 6 | Chapter 7 | Chapter 8 | Chapter 9 | Chapter 10

Practice more: Chapter 2 | Chapter 3 | Chapter 4 | Chapter 5 | Chapter 6 | Chapter 7 | Chapter 8 | Chapter 9

Quick revision: Chapter 2 | Chapter 3 | Chapter 4 | Chapter 5 | Chapter 6 | Chapter 7 | Chapter 8 | Chapter 9