

Watch. Practice. Understand. | Lesson 136

In Depth Analysis of Conic Section with Circles, Parabola and Ellipses

Watch the matching video: <https://www.youtube.com/watch?v=JcbE1aYv4EE>

Practice focus: Circles, chords and equations

Original extra practice matched to the listed lesson topic.

Name: _____ Date: _____ Show your reasoning and check units.

01 Write the circle with center (2, -3) and radius 5.

02 Find the center and radius of $x^2 + y^2 - 6x + 4y - 12 = 0$.

03 A chord of a radius-5 circle is 3 units from the center. Find its length.

04 An inscribed angle intercepts an arc measuring 100° . Find the angle.

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Practice focus: Conic sections

Original extra practice matched to the listed lesson topic.

Name: _____ Date: _____ Show your reasoning and check units.

05 Find center, vertices and foci of $x^2/25 + y^2/9 = 1$.

06 Find the vertices and asymptotes of $x^2/9 - y^2/16 = 1$.

07 For $y^2 = 8x$, find vertex, focus and directrix.

08 Classify $x^2 + 4y^2 = 16$ and $x^2 - y^2 = 9$.

Worked answers | Lesson 136

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Practice focus: Circles, chords and equations

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- 01** Write the circle with center (2, -3) and radius 5.

$$(x - 2)^2 + (y + 3)^2 = 25.$$

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- 02** Find the center and radius of $x^2 + y^2 - 6x + 4y - 12 = 0$.

Complete squares: $(x - 3)^2 + (y + 2)^2 = 25$. Center (3, -2), radius 5.

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- 03** A chord of a radius-5 circle is 3 units from the center. Find its length.

The perpendicular from center bisects the chord. Half-chord = $\sqrt{(25 - 9)} = 4$; whole chord 8.

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- 04** An inscribed angle intercepts an arc measuring 100° . Find the angle.

An inscribed angle is half its intercepted arc: 50° .

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Practice focus: Conic sections

Original extra practice matched to the listed lesson topic.

05 Find center, vertices and foci of $x^2/25 + y^2/9 = 1$.

Center (0,0); vertices $(\pm 5, 0)$; $c^2 = 25 - 9 = 16$, so foci $(\pm 4, 0)$.

06 Find the vertices and asymptotes of $x^2/9 - y^2/16 = 1$.

Vertices $(\pm 3, 0)$; asymptotes $y = \pm(4/3)x$.

07 For $y^2 = 8x$, find vertex, focus and directrix.

$4p = 8$, so $p = 2$. Vertex (0,0), focus (2,0), directrix $x = -2$.

08 Classify $x^2 + 4y^2 = 16$ and $x^2 - y^2 = 9$.

The first has two positive squared terms with unequal coefficients: ellipse. The second has opposite signs: hyperbola.