

Watch. Practice. Understand. | Lesson 215

Pre Calculus 10 2 10 3 Ellipses and Hyperbolas

Watch the matching video: https://www.youtube.com/watch?v=dzYvrP9_P6E

Practice focus: Conic sections

Original extra practice matched to the listed lesson topic.

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

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

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

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

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

Worked answers | Lesson 215

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01 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 $(\pm 4, 0)$.

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

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

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

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

04 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.