

Conic Sections and Geometry Formulas Students Need To Know For Taking ACT math

Lesson 351 | Math Enrichment | Circles, chords and equations • Conic sections • Area and perimeter

<https://www.youtube.com/watch?v=vcsgB-qsu74>

Related review: exact coverage needs teacher confirmation.

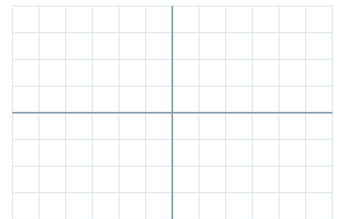
Name: _____ Date: _____ Show your reasoning.

01

Write the equation of a circle with center (3,8) and radius 11. Find its x-extremes and y-extremes.

02

For $(x-7)^2/196 + (y-7)^2/121 = 1$, find the center, vertices, co-vertices, and foci; sketch.

**03**

A regular polygon has perimeter 54 cm and apothem 4 cm. Find its area.

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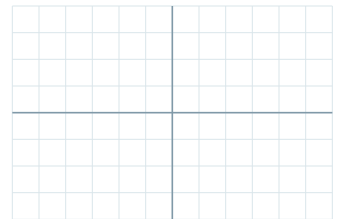
Name: _____ Date: _____ Show your reasoning.

04

Write the equation of a circle with center $(-7, 14)$ and radius 2. Find its x-extremes and y-extremes.

05

For $(x - (-9))^2/144 + (y - 13)^2/100 = 1$, find the center, vertices, co-vertices, and foci; sketch.

**06**

A regular polygon has perimeter 66 cm and apothem 10 cm. Find its area.

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01

Write the equation of a circle with center (3,8) and radius 11. Find its x-extremes and y-extremes.

$(x-3)^2 + (y-8)^2 = 121$. Left/right: (-8,8), (14,8); bottom/top: (3,-3), (3,19).

02

For $(x-7)^2/196 + (y-7)^2/121 = 1$, find the center, vertices, co-vertices, and foci; sketch.

Center (7,7); horizontal semimajor axis 14, semiminor axis 11. Vertices (-7,7), (21,7); co-vertices (7,-4), (7,18); foci $(7 \pm \sqrt{75}, 7)$.

03

A regular polygon has perimeter 54 cm and apothem 4 cm. Find its area.

Split into triangles with height equal to the apothem.

$A = (1/2) \cdot \text{apothem} \cdot \text{perimeter} = (1/2)(4)(54) = 108 \text{ cm}^2$.

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04

Write the equation of a circle with center $(-7,14)$ and radius 2. Find its x-extremes and y-extremes.

$(x-(-7))^2+(y-14)^2=4$. Left/right: $(-9,14)$, $(-5,14)$; bottom/top: $(-7,12)$, $(-7,16)$.

05

For $(x-(-9))^2/144 + (y-13)^2/100 = 1$, find the center, vertices, co-vertices, and foci; sketch.

Center $(-9,13)$; horizontal semimajor axis 12, semiminor axis 10. Vertices $(-21,13)$, $(3,13)$; co-vertices $(-9,3)$, $(-9,23)$; foci $(-9 \pm \sqrt{44},13)$.

06

A regular polygon has perimeter 66 cm and apothem 10 cm. Find its area.

Split into triangles with height equal to the apothem.

$A = (1/2) \cdot \text{apothem} \cdot \text{perimeter} = (1/2)(10)(66) = 330 \text{ cm}^2$.