

Precalculus - Conic Sections - Test

Common Core G-GPE.A.1, G-GPE.A.2, G-GPE.A.3 · maths-pdf.fr/en/

Name: _____ Class: _____ Date: ____/____/____

This 20-point test covers circles, parabolas, ellipses, hyperbolas and a satellite dish model (G-GPE.A.1 to G-GPE.A.3). You have 45 minutes. Show your work.

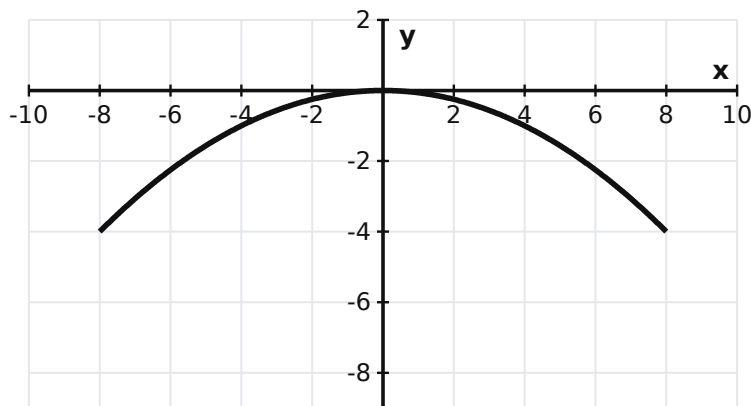
About this test

- Grade: Precalculus
- Chapter: Conic Sections
- Standards: G-GPE.A.1, G-GPE.A.2, G-GPE.A.3
- Time: 45 minutes
- Total: 20 points

Question 1 - Circles [2 pts]

(a) Write the equation of the circle with center $(-1, 4)$ and radius 3. (b) Find the center and radius of $x^2 + y^2 + 8x - 2y + 8 = 0$.

Question 2 - Parabola parts [2 pts]



The parabola $x^2 = -16y$.

Find the focus and directrix of $x^2 = -16y$.

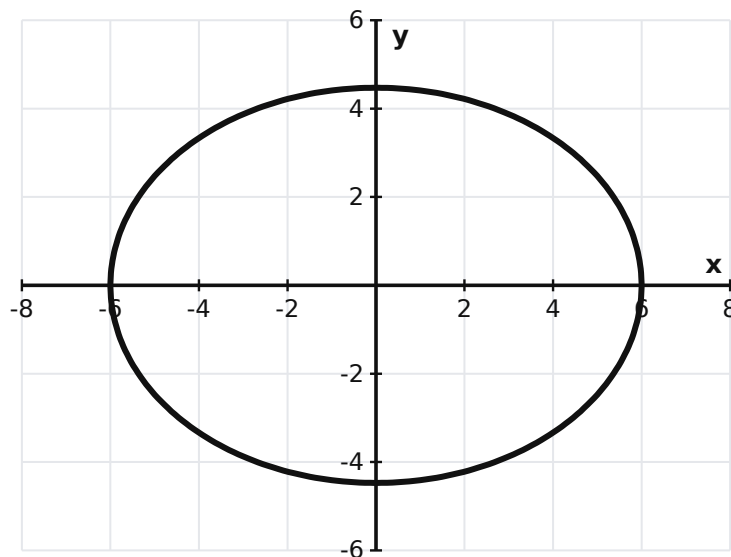
Question 3 - Parabola from focus and directrix [2 pts]

Write the equation of the parabola with focus $(-2,0)$ and directrix $x=2$.

Question 4 - Ellipse foci [2 pts]

Write $16x^2+25y^2=400$ in standard form and find the foci.

Question 5 - Read an ellipse [3 pts]



The ellipse $x^2/36 + y^2/20 = 1$.

For $\frac{x^2}{36} + \frac{y^2}{20} = 1$: (a) State a and b . (b) Find c and the foci. (c) Find the length of the major axis.

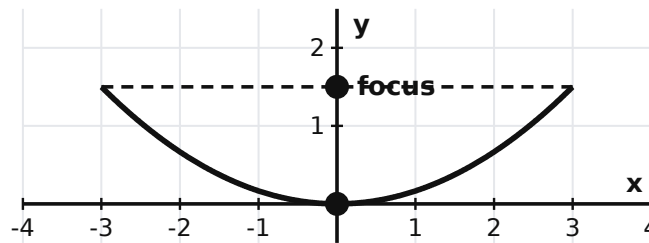
Question 6 - Hyperbola parts [2 pts]

For $\frac{x^2}{25} - \frac{y^2}{144} = 1$, find the vertices and the equations of the asymptotes.

Question 7 - Hyperbola from vertices and foci [2 pts]

Write the equation of the hyperbola with vertices $(0, \pm 3)$ and foci $(0, \pm 5)$.

Question 8 - Satellite dish [3 pts]



Cross-section of a 6 foot dish.

A parabolic dish is 6 ft across and 1.5 ft deep. (a) Write its equation as $x^2 = 4py$ with the vertex at the origin. (b) Find the focus. (c) Find the depth 2 ft from the center.

Question 9 - Classify conics [2 pts]

Identify each conic: (a) $3x^2 + 3y^2 = 27$; (b) $\frac{x^2}{4} - \frac{y^2}{9} = 1$.