

Conics Assignment Calendar

Day	Date	Assignment (Due the next class meeting)
Friday	3/8/23 (A)	Conics Day 1 Parabolas and Circles
Monday	3/9/23 (B)	
Tuesday	3/10/23 (A)	Conics Day 2 Ellipses and Hyperbolas
Wednesday	3/14/23 (B)	
Spring Break March 20– March 31		

Show the original problem, all work, and solutions on your own paper!

Conics Day 1 Practice:

For #1-8: Identify each conic as a parabola or circle and then write the standard equation.

1) $y - x^2 + 2x = 0$ 2) $x^2 - 8x + y^2 = 33$ 3) $y^2 + 2y - 3x = 5$

4) $3x^2 + 3y^2 + 24y - 18x - 27 = 0$ 5) $y - x^2 - 10x = 27$
 6) $x^2 - 6x - 10y = 2 - y^2$ 7) $2x^2 + 2y^2 - 20y + 18 = 0$

8) $y^2 - 12y + 16x - 60 = 0$

9) Write the standard equation of a circle with a radius of 3 that has been translated right 5 units and up 8 units from the origin.

10) Given the equation $x = y^2$, translate the graph left 1 unit and up 5 units.

11) Given the equation $y = x^2$, translate the graph down 3 units and right 1 unit.

12) You deposit \$1,500 dollars into an account that earn 3.4% interest, compounded weekly. Find the balance after 5 years.

13) How long would it take to double \$3,000 invested in an account that pays 5.25% compounded continuously?

Conics Day 2 Practice:

For #1-8, Identify each conic as an ellipse or hyperbola then write the standard equation.

1) $x^2 + 9y^2 - 2x - 8 = 0$ 2) $25y^2 - 100y + 100 - x^2 = 25$ 3) $x^2 + 4y^2 = 64$

4) $9x^2 - 4y^2 - 18x + 8y = 31$ 5) $9x^2 - 4y^2 + 54x + 8y + 41 = 0$

6) $4x^2 + 25y^2 + 16x + 50y = 59$ 7) $y^2 + 6y - 11 = 4x^2 + 8x$

8) $3x^2 + y^2 - 2y = -18x - 4$ *Continued on back...*

9) Describe the end behavior of the function $f(x) = -\left(\frac{1}{3}\right)^{x+2} - 1$

10) Simplify $\sqrt[3]{x^{11}} \cdot \sqrt[4]{x}$

11) Find the inverse of $f(x) = \frac{1}{7}x^3 - 2$

12) Solve for x : $\sqrt{x-3} = 5 - \sqrt{x+2}$

Day 1 Practice Answers:

1. $y = (x - 1)^2 - 1$ Parabola
2. $(x - 4)^2 + y^2 = 49$ Circle
3. $x = \frac{1}{3}(y + 1)^2 - 2$ Parabola
4. $(x - 3)^2 + (y + 4)^2 = 34$ Circle
5. $y = (x + 5)^2 + 2$ Parabola
6. $(x - 3)^2 + (y - 5)^2 = 36$ Circle
7. $x^2 + (y - 5)^2 = 16$ Circle
8. $x = -\frac{1}{16}(y - 6)^2 + 6$ Parabola
9. $(x - 5)^2 + (y - 8)^2 = 9$
10. $x = (y - 5)^2 - 1$
11. $y = (x - 1)^2 - 3$
12. \$1,777.86
13. About 13.2 years

Day 2 Practice Answers:

1. $\frac{(x-1)^2}{9} + \frac{y^2}{1} = 1$ Ellipse
2. $\frac{(y-2)^2}{1} - \frac{x^2}{25} = 1$ Hyperbola
3. $\frac{x^2}{64} + \frac{y^2}{16} = 1$ Ellipse
4. $\frac{(x-1)^2}{4} - \frac{(y-1)^2}{9} = 1$ Hyperbola
5. $\frac{(x+3)^2}{4} - \frac{(y-1)^2}{9} = 1$ Hyperbola
6. $\frac{(x+2)^2}{25} + \frac{(y+1)^2}{4} = 1$ Ellipse
7. $\frac{(y+3)^2}{16} - \frac{(x+1)^2}{4} = 1$ Hyperbola
8. $\frac{(x+3)^2}{8} + \frac{(y-1)^2}{24} = 1$ Ellipse
9. as $x \rightarrow \infty, f(x) \rightarrow -1$, as $x \rightarrow -\infty, f(x) \rightarrow -\infty$
10. $x^{\frac{47}{12}}$
11. $f^{-1}(x) = \sqrt[3]{7x + 14}$
12. $x = 7$