

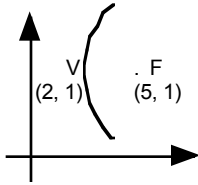
**PreCalc BC**

**Conics**

**Name:**

1. The graph of  $3x^2 - 5xy + 2y^2 + 8x - 7y + 9 = 0$  is  
 a) a parabola    b) a circle    c) an ellipse  
 d) a hyperbola    e) your momma

2. An equation of the parabola shown below is



- a)  $(y - 1) = 12(x - 2)^2$     b)  $12(x - 2) = (y - 1)^2$   
 c)  $(x - 2) = 12(y - 1)^2$     d)  $(y - 1) = \frac{1}{12}(x - 2)^2$   
 e)  $(y - 1) = \frac{3}{4}(x - 2)^2$

3. The eccentricity of the conic  $4x^2 - y^2 = 36$  is  
 a) 0.87    b) 1.12    c) 1.73  
 d) 2.24    e) 5.20

4. Which of the following is the equation of a circle that has its center at the origin and is tangent to the line with equation  $3x - 4y = 10$  ?

- a)  $x^2 + y^2 = 2$     b)  $x^2 + y^2 = 3$   
 c)  $x^2 + y^2 = 4$     d)  $x^2 + y^2 = 5$   
 e)  $x^2 + y^2 = 10$

5. What is the equation of the set of points so that the distance between any point and  $(0, 0)$  is twice the distance between that point and the  $x$ -axis?

- a)  $3x^2 - y^2 = 0$     b)  $x^2 - 3y^2 = 0$   
 c)  $x^2 + y^2 - 2x = 0$     d)  $x^2 + y^2 - 2y = 0$   
 e)  $4x^2 + 3y^2 = 0$

6. The set of points  $(x, y)$  that satisfy  $(x - 3)(y + 2) > 0$  lies in quadrant(s)  
 a) I and IV    b) only II    c) III and IV  
 d) I, III, and IV    e) all four quadrants

7. A point moves in a plane so that its distance from the origin is always twice its distance from point  $(1, 1)$ . All such points form  
 a) a line    b) a parabola    c) a circle  
 d) an ellipse    e) a hyperbola

8. If  $(x - 4)^2 + 4(y - 3)^2 = 16$  is graphed, the sum of the distance from any point on the curve to the two foci is  
 a) 4    b) 8    c) 12    d) 16    e) 32

9. The center of the circle  $x^2 + y^2 + ax + by + 2 = 0$  is point  $(4, -8)$ , then  $a + b =$   
 a) -4    b) 4    c) 8    d) -8    e) 24

10. The  $y$ -coordinate of one focus of the ellipse  $36x^2 + 25y^2 + 144x - 50y - 731 = 0$  is  
 a) 7.81    b) 1    c) 4.32  
 d) -2    e) 3.32

11. For what values of  $k$  does the graph of  $\frac{(x - 2k)^2}{1} - \frac{(y - 3k)^2}{3} = 1$  pass through the origin?  
 a) only 0    b) only 1    c)  $\pm 1$   
 d)  $\pm \sqrt{5}$     e) no value

12. What is the solution set of  $\frac{x + 3}{x} < 5$  ?