Pre-Calculus Final Exam Review

Spring 2019

1. Simplify: 

2. Simplify: 

3. 

4. 

5. 

6. 

7. What are the Pythagorean Identities?

8. What are the reciprocal identities?

9. Write an equation of a parabola with a vertex at the origin and a focus at (5,0)

10. Identify the vertex, focus, and directrix, and direction of the graph of 

11. Graph: 

12. Write an equation of an ellipse with a center (-3, -1), a = 3, and b = 2. Graph the ellipse.

13. Write an equation of a circle with center (12, -9) and radius 4.

14. Find the center of and graph the hyperbola with the equation 

15. Identify the conic section and find the center. 

16. Find the vertex of 

17. Find the center of the hyperbola with equation 

18. What is the graph of 

19. Find the center and radius for the equation 

20. Find the length of the major axis of the equation 

21. Given **u** = <-2,5> and **v** = <5, 13>, find 3**u** – 4**v**

22**.** Find the magnitude of <15, -12>

23.Find the angle between <8, -3> and <-2, 4>

24. Let **u** = < -7, 6 > Find the unit vector in the direction of ***u.*** Write your answer in linear combination form.

25**.** A hot air balloon is traveling at a speed of 100.4 mi/hr at an angle of 150o while the wind blows with a velocity of 40.9 mi/hr at 45o north of east. What is the resultant speed and direction of the hot air balloon?

26. What is the work done by a force of 120 N at an angle of 70o to move a box 95 m horizontally?

27. A hot air balloon exerts a 1350 lb pull on a tether line at a 50o angle with the horizontal. What are the components of this force?

28. Find the component form of the vector that starts at (-4,3) and terminates at (-7,11)