**PreCalculus Final Exam Review Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Chapter 6**

1. Given and , find **.**

2. Determine whether ***u*** are ***v*** and orthogonal, parallel, or neither:

3. Find the magnitude of vector ***v*** with initial point and terminal point .

4. Given and , determine **.**

5. Find the angle between the vectors: and

**Chapter 8**

1. Determine the order of the matrix.

2. Write the augmented matrix for the system of linear equations.

3. Use the matrix capabilities of a graphing utility to write the matrix in reduced row-echelon form.

4. Use matrices to solve the system of equations (if possible). Use Gaussian elimination with back-substitution or Gauss-Jordan elimination.

5. If possible, find 2*A* – 5*B*.

6. Evaluate the expression.

7. If possible, find *AB*.

8. Find the inverse of the matrix .

9. Solve the system of linear equations:

10. Find the determinant of .

**Chapter 9**

1. Find the indicated term of the sequence.

2. Write the first five terms of the sequence defined recursively. Use the pattern to write the term of the sequence as a function of *n*. (Assume that *n* begins with 1.)

3. Simplify the factorial expression.

4. Find a formula for *an* for the arithmetic sequence.

5. The first two terms of the arithmetic sequence are given. Find the term.

6. Find the indicated partial sum of the arithmetic sequence.

1.9, 4.8, 7.7, 10.6, ..,

7. Find the indicated term of the geometric sequence.

8. Find the sum of the finite geometric sequence.



9. Find the sum of the infinite geometric series.



10. Use the Binomial Theorem to expand and simplify the expression.

**Chapter 3**

In Exercises 1-4, evaluate the expression. Approximate your result to three decimal places.

1. 2. 3. 4.

In Exercises 5-7, construct a table of values. Then sketch the graph of the function.

5. 6. 7.

8. Evaluate (a) and (b)

In Exercises 9-11, construct a table of values. Then sketch the graph of the function. Identify any asymptotes.

9. 10. 11.

In Exercises 12-14, evaluate the logarithm using the change-of-base formula.

Round your answer to three decimal places.

12. 13. 14.

In Exercises 15-17, use the properties of logarithms to expand the expression as a sum, difference, and/or constant multiples of logarithms.

15. 16. 17.

In Exercises 18-20, condense the expression to the logarithm of a single quantity.

18. 19. 20.

In Exercises 21-26, solve the equation algebraically. Approximate your result to three decimal places.

21. 22.

23. 24.

25. 26.

**Chapter 10**

1. Find the inclination of the line:

2. Find the angle between the two lines: and

3. Find the distance from the point to the line:

4. Find the equation of the parabola with a vertex at and focus at

5. Graph the parabola:

6. Find the equation of the ellipse with vertices , and co-vertices , .

7. Graph the ellipse:

8. Find the equation of the hyperbola with foci and vertices .

9. Graph the hyperbola:

In Exercises 10-13, identify the type of conic section.

10. 11.

12. 13.

14. Plot the polar point and find two additional polar representations of the point.

15. Convert the polar point to rectangular coordinates.

16. Convert the rectangular point to polar coordinates.

17. Convert the rectangular equation to polar form:

18. Convert the polar equation to rectangular form:

19. Identify the types of symmetry (if any) and find the maximum value for for the equation .

In Exercises 20-21, construct a table and graph each polar equation.

20.

21.

**Chapter 6**

1. 21

2. neither

3.

4.

5. 135°

**Chapter 8**

1. 2 by 3

2.

3.

4. and

5.

6.

7.

8. .

9. , ,

10.

**Chapter 9**

1. 25

2.

3. 990

4.

5. 36

6. 589

7. 20480

8.

9.

10.

**Chapter 3**

1. 2. 3. 4.

In Exercises 5-7, construct a table of values. Then sketch the graph of the function.

5. 6. 7.

8. (a) and (b)

In Exercises 9-11, construct a table of values. Then sketch the graph of the function. Identify any asymptotes.

9. 10. 11.

12. 13. 14.

15. 16. 17.

18. 19. 20.

21. 22.

23. 24.

25. 26. no solution

**Chapter 10**

1.

2.

3.

4.

5. Graph the parabola:

6.

7. Graph the ellipse:

8.

9. Graph the hyperbola:

10. ellipse

11. hyperbola

12. parabola

13. circle

14. , , …

15.

16.

17.

18.

19. symmetric to line

In Exercises 20-21, construct a table and graph each polar equation.

20.

21.