Math 1330 Test 4 Review

Where: CASA Testing Center(s) – Look in your confirmation email

Time: 60 minutes

Questions: 14 Multiple Choice + 2 Free Response = Total 16

Points: 82 for Multiple Choice Part + 18 Free Response = Total 100

What is covered: **Section 6.3, Chapter 7, Chapter 8**

What to bring: **Cougar card**

Make up Policy: ***NO MAKE-UPS!***

Plan to be at the testing center 10-15 minutes before your scheduled time.

If you are late, then try to reschedule through your CASA account.

If you miss your test, you will get a zero for the test.

Your Final exam score will replace ONE lowest score test grade.

No calculators allowed during the test!

How to study:

- Make sure you do understand all the concepts covered.
- Solve ALL problems on this review sheet.
- Take Practice Test 4 BEFORE your test.
  It is for practice AND extra credit.
  10% of your best score will be added to your Test 4 score.
- Know how to write COMPLETE answers to free response problems.
  NO skipping steps!

Section 6.3: Solving Trigonometric Equations

1. Solve the following equations over the indicated interval:

   a) $2\sin(x) - 4 = -3$ over $[0,2\pi)$

   b) $8\cos(x) - 1 = -5$ over $[0,2\pi)$

   c) $4\sin(2x) = 2\sqrt{2}$ over $[0,\pi)$

   d) $6\cos(4x) = -3\sqrt{3}$ over $\left[0,\frac{\pi}{2}\right)$

2. How many solutions are there to the following equations? (You should be able to answer this kind of problem without solving the equations!)

a) $2\sin(x) = -3$ over $[0,2\pi)$

b) $3\sin(x) = -2$ over $[0,2\pi)$

c) $3\cos(x) + 4 = 4$ over $[0,2\pi)$

d) $2\cos(x) + 2 = 0$ over $[0,2\pi)$

e) $2\cos(x) + 6 = 4$ over $[0,2\pi)$

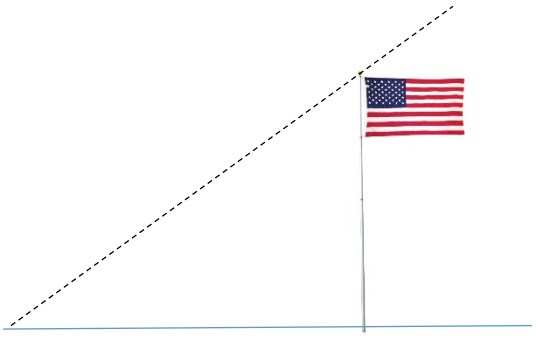
f) $3\sin(x) + 3 = 0$ over $[0,2\pi)$

g) $3\cos(x) + 4 = 8$ over $[0,2\pi)$

Chapter 7: Solving Triangles, Law of Sines, Law of Cosines and Vectors

3. In a right triangle ABC with right angle C, angle A measures 15°. If the hypotenuse is 20 units long, find the lengths of the legs AC and BC.

4. The angle of elevation to the top of a flag pole from a point on the ground 40 feet from the base of the pole is 51°. Find the height of the flagpole.



5. Find the area of triangle CAT if $m\angle A = 120°$, $c = 6$ and $t = 20$.

6. In triangle ABC, $m\angle A = 45°$, $m\angle B = 30°$ and $AC = 6$. Find BC.

7. In triangle ABC, $m\angle A = 60°$, $m\angle B = 45°$ and $BC = 10$. Find AC.

8. In triangle ABC, $m\angle A = 60°,\ AB = 10$ and $AC = 5$. Find BC.

9. In triangle ABC, $m\angle A = 120°,\ AB = 4$ and $AC = 7$. Find BC.

10. Let $u = 4i + 3j$ and $v = 2i - 2j$.

a) Find the magnitude of the vector u and the magnitude of the vector v.

b) Find the vector $5u - 2v$.

11. Let $u = \langle 2, -1 \rangle$ and $v = \langle 5, 3 \rangle$. Find the dot product $u \cdot v$

Chapter 8: Recognizing Conic Sections and Solving Systems

12. Classify the following conic sections represented by the following equations:

a) $\frac{(x-5)^2}{9} + \frac{(y+2)^2}{16} = 1$

b) $\frac{(x+3)^2}{25} - \frac{(y-2)^2}{16} = 1$

c) $(x+3)^2 + (y-2)^2 = 100$

d) $(y-2)^2 = -4(x+3)$

e) $(x+3)^2 = 8(y-2)$

13. Write the equation of a circle with center $(1, -4)$ and radius 5.

14. Find the center and radius of the circle represented by the following equation:

$x^2 + y^2 + 6x - 4y - 12 = 0$

15. State the coordinates of the vertex of the following parabola:

a) $x^2 + 4x - 4y - 8 = 0$

b) $(y + 1)^2 = 8(x + 2)$

16. State the vertices of the following ellipses:

a) $\frac{x^2}{49} + \frac{y^2}{16} = 1$

b) $\frac{x^2}{36} + \frac{y^2}{100} = 1$

17. How many solutions does the following system have? Answer by graphing.

a) $x^2 + (y+2)^2 = 1$
$y = x^2$

b) $x^2 + (y+2)^2 = 4$
$y = x^2$

c) $x = y^2$
$y = x + 10$

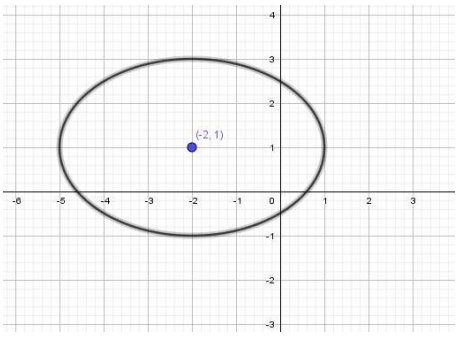
d) $x = y^2$
$y = -x + 1$

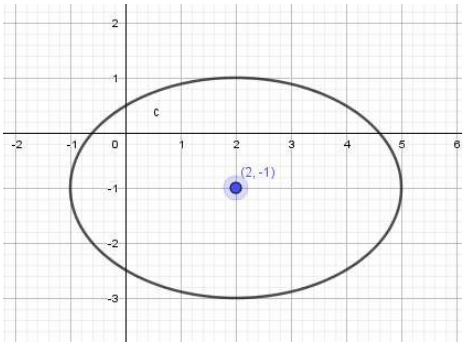
18. Find the point(s) of intersection.

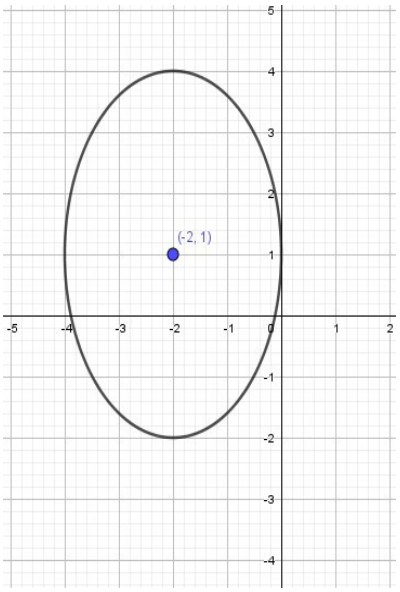
$$4x^2 + 7y^2 = 23$$
$$3x^2 - \ y^2 = 11$$

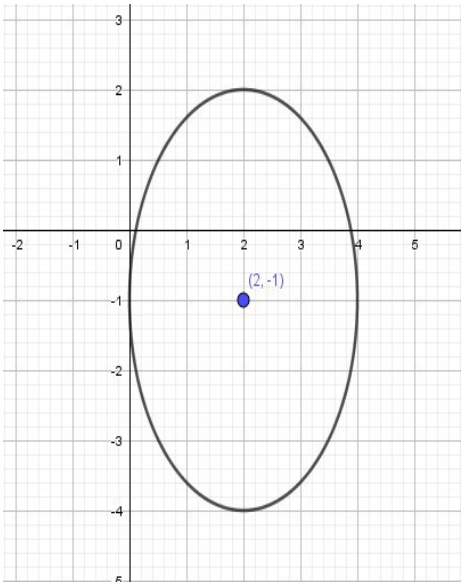
19. Which of the following is the graph of the following conic section:

$$\frac{(x-2)^2}{9} + \frac{(y+1)^2}{4} = 1$$



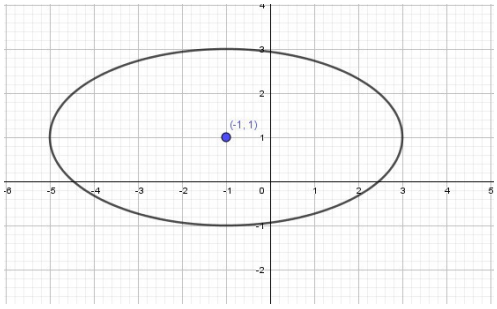


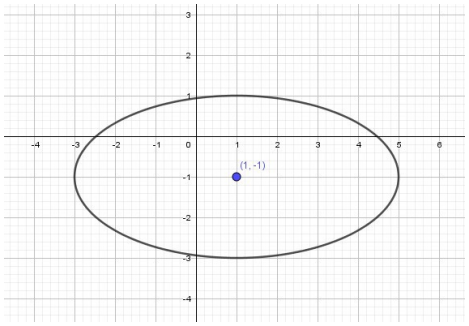


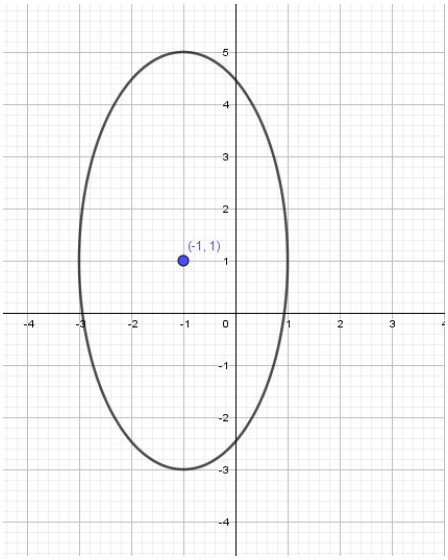


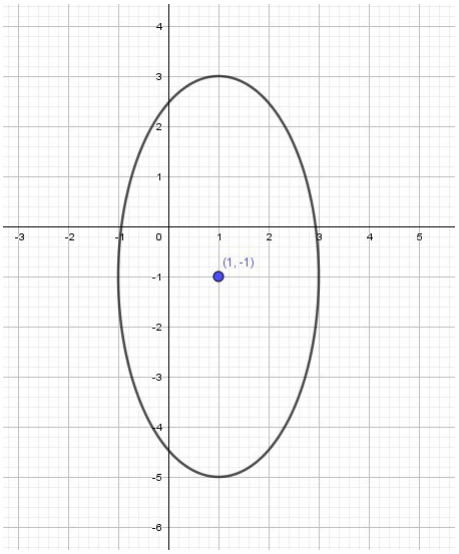
20. Which of the following is the graph of the following conic section:

$$\frac{(x+1)^2}{4}+\frac{(y-1)^2}{16}=1$$



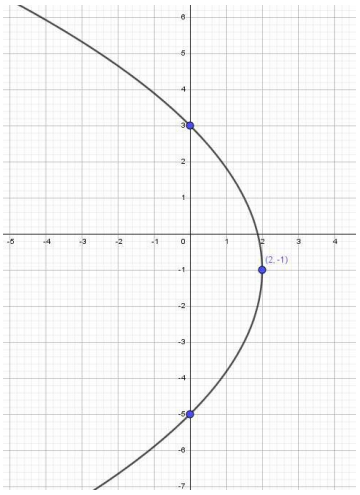


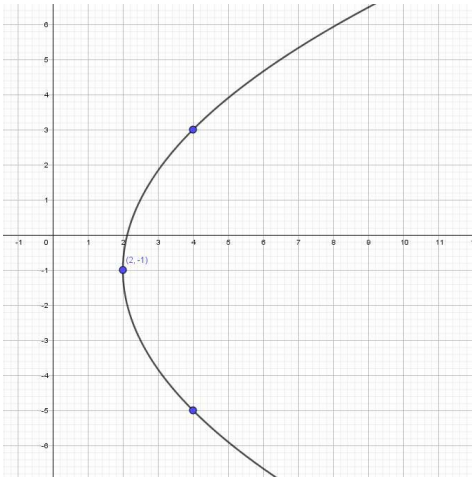


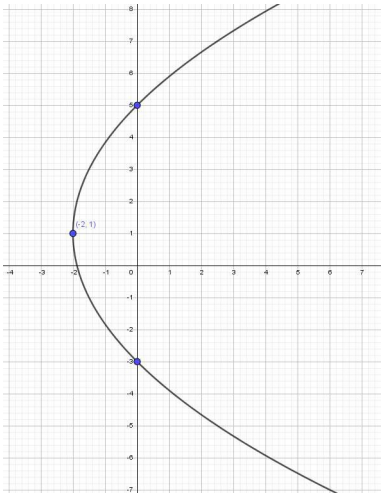


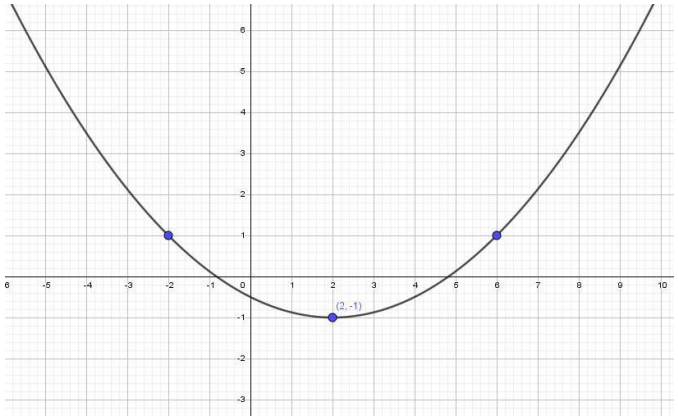
21. Which of the following is the graph of the following conic section:

$$(y+1)^2 = 8(x-2)$$









22. Which of the following is the graph of the following conic section:

$$(y-1)^2 = -12(x+1)$$