

Write your name on the cover of the test booklet and nowhere else. Failure to follow these directions will cost you 1 point. The test has 100 points (to be scaled up to 150 points) and is scheduled to take 50 minutes. Therefore, expect to spend 1 minute for every 2 points. For example, a 16-point question should take 8 minutes. I cannot allow extra time because of the class that follows our class.

**Show all work and write each answer on a separate side of a sheet of paper.  
Graphing calculators are prohibited.**

- 1) (10 points) Find the distance between (3, -2) and (7, -5).
- 2) (10 points) Does the equation  $4Y^2 - 3X^2 = 2$  have symmetry around the x-axis, y-axis, and/or the origin?
- 3) (10 points) For the circle,  $(X - 2)^2 + (Y + 1)^2 = 4$ , find the center, radius, and four points on the circle. Draw the center and the circle.
- 4) (10 points) Find the slope, x-intercept, and y-intercept of the line,  $3X + 4Y = 8$ . Plot the line.
- 5) (10 points) Find the slope of the line through (-3, 2) and (-7, 10). Write the equation of the line in standard form.
- 6) (10 points) Find the equation for a line perpendicular to  $-2X + Y = 4$ .
- 7) (10 points) Is the equation  $Y = \sqrt{X + 4}$  a function? If no, then prove it is not. If yes, then find the domain, range, x-intercept, and y-intercept.
- 8) (10 points) Is the equation  $Y^2 = X + 3$  a function? If no, then prove it is not. If yes, then find the domain, range, x-intercept, and y-intercept.
- 9) (10 points) If there are three functions given by the equations  $F(X) = X^2 + 2$ ,  $G(X) = 2X - 3$ , and  $H(X) = -3X + 1$ , then find  $F(-4) - G(3) + H(1)$ .
- 10) (10 points) Draw a function that is increasing for values of  $X$  in the interval  $(-\infty, -2)$ , decreasing for values of  $X$  in the interval  $[-2, 3)$  and constant for  $X$  in the interval  $[3, 5]$ .