

You may only use your textbook, your notes, and your calculator on these problems. You may not use any outside resources, including tutors or solution manuals. Remember that the purpose of these quizzes is to see if you understand what you have learned on your homework, and also to tell you what you still need to study for the upcoming exam. **(NOTE: this quiz is two-sided.)**

1. (2 points) Find the equation of the line parallel to the line $-2x + 3y = 7$ through the point $(-4, -2)$. Also find the line perpendicular to $-2x + 3y = 7$ through the point $(-4, -2)$.
2. (2 points) Given $f(x) = x^2 - 4x + 7$ describe in words how to find the x -intercepts. Also, find the x -intercepts and interpret the results.
3. (2 points) Find the center and radius of the circle $x^2 + y^2 - 2x + 7y - 4 = 0$.

4. (4 points) Given $f(x) = 3x^2 - 4x + 1$, $g(x) = x + 4$ and $h(x) = -2x^2 + 3x + 7$ find the following (labels are ESSENTIAL):

a. $f(2)$

b. $h(x) - g(x)$

c. the difference quotient: $\frac{f(x+h)-f(x)}{h}$