

MS 100 College Algebra Spring 2006 Test Six • Name:

1. Calculate (expand): $\left(x - \frac{1}{2} - 4i\right)\left(x - \frac{1}{2} + 4i\right)$

2. For $f(x) = x^2 - x - 15.75$
 $g(x) = x + 15.75$

Find the composition: $(g \circ f)(x)$

3. All about $f(x) = x^2 - x - 15.75$...

- _____ a. What is the degree of the function $f(x) = x^2 - x - 15.75$?
- _____ b. Is $f(x) = x^2 - x - 15.75$ an even or odd function?
- _____ c. Does $f(x) = x^2 - x - 15.75$ open up or open down?
- _____ d. What is the maximum number of zeros for $f(x) = x^2 - x - 15.75$?
- _____ e. What is the name of the shape produced by $f(x) = x^2 - x - 15.75$?
- _____ f. What is the y-intercept for $y = x^2 - x - 15.75$?

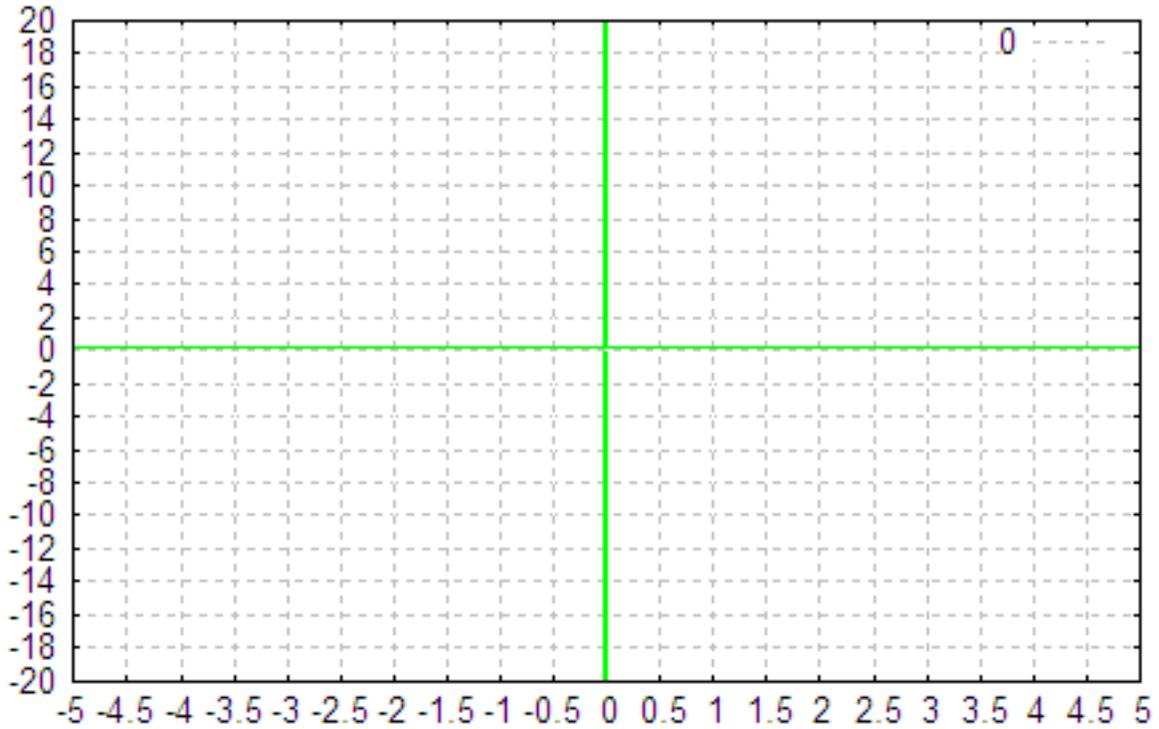
g. Solve $x^2 - x - 15.75 = 0$ by completing the square. Show your work.

h. Find the x-intercepts for $f(x) = x^2 - x - 15.75$

i. Use the formula $(h, k) = \left(\frac{-b}{2a}, \frac{-b^2 + 4ac}{4a}\right)$ to find the vertex (h, k) for
 $y = x^2 - x - 15.75$

j. Use the formula $(h, k+p)$ where $p = \frac{1}{4a}$ to find the focus for
 $f(x) = x^2 - x - 15.75$

k. Sketch a graph of $f(x) = x^2 - x - 15.75$:



4. Solve by completing the square $x^2 - x + 16.5 = 0$. Show your work.