Hi kids, it's almost Saturday, and that means that it's almost time to watch a full day of College Football!!!!! First things first, though, here are the solutions to the first quiz. Enjoy! ROCK ON!

1. (a) Here, \( f(4) = (4)^2 - 3(4) + 2 = 6 \).

(b) All of the \( x \) intercepts are where the graph touches the \( x \)-axis, or equivalently, when \( f(x) = 0 \). One may use the quadratic formula or factoring that this happens only when \( x = 1 \), and 2.

(c) The \( y \)-intercept of a function is where the graph touches the \( y \)-axis, or equivalently, when \( x = 0 \). So, \( f(0) = 2 \) is the only \( y \) intercept.

(d) Notice \( f(-x) = (-x)^2 - 3(-x) + 2 = x^2 + 3x + 2 \), which is not equal to \( f(x) \) or \( -f(x) \), hence, the function is neither even nor odd.

2. (a) The graph is shifted one unit to the right.

(b) The graph is shifted 7 units down.

(c) The graph is first scaled by a factor of 3 vertically, then shifted up one unit.

(d) The graph is reflected over the \( x \)-axis and the \( y \)-axis.

3. We complete the square on the \( x \) terms as follows:

\[
x^2 - 4x = x^2 - 4x + 4 - 4 = (x - 2)^2 - 4.
\]

Completing the square on the \( y \) terms gives us:

\[
y^2 - 6y = y^2 - 6y + 9 - 9 = (y - 3)^2 - 9.
\]

So we have

\[
12 = x^2 - 4x + y^2 - 6y = (x - 2)^2 - 4 + (y - 3)^2 - 9,
\]

And so adding 4 and 9 to the left side gives

\[
25 = (x - 2)^2 + (y - 3)^2,
\]

so the center of this circle is located at \((2, 3)\) and has radius \( \sqrt{25} = 5 \).

4. Since 2 is the slope of the line \( y = 2x - 1 \), the slope of the line we’re looking for is the negative reciprocal of 2, which is \(-1/2\). Using point-slope form of a line, we have

\[
y - 2 = -\frac{1}{2}(x - 1).
\]