Precalculus Quarter 2 Spiral Review 1

1. Determine the domain and range of the function in interval notation: $f(x) = -2(x - 3)^2 + 1$

2. Identify whether the function is even, odd, or neither: $f(x) = x(x^2 - 2)$

3. Determine if given binomial is a factor, if so, find the remaining factors: $x - 2, \quad x^3 - 8x^2 + 4x - 6$

4. Find the equation for the inverse function: $\log_4(x - 5) + 7 = f(x)$

5. Convert to radians: 575°

6. Identify: {Amplitude, Period, Phase Shift, Vertical shift} $y = -2 + 3 \sin \frac{1}{3}\left(\theta - \frac{\pi}{2}\right)$

7. Factor this polynomial. Determine all the zeros, including multiplicity. $f(x) = 3x^5 + 11x^4 - 20x^3$

8.   **FARMING** A farmer wants to fence a piece of his land. Two sides of the triangular field have lengths of 120 feet and 325 feet. The measure of the angle between those sides is 70°. How much fencing will the farmer need?

9.
   BOAT Kira and Mallory are standing on opposite sides of a river. How far is Kira from the boat? Round to the nearest tenth if necessary.
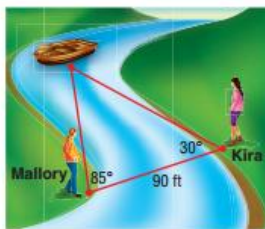
10.
   If $f(x) = 2x^2 - 3x$ and $g(x) = 4 - 2x$, what is $g[f(x)]$?

   F $g[f(x)] = 4 + 6x - 8x^2$
   G $g[f(x)] = 4 + 6x - 4x^2$
   H $g[f(x)] = 20 - 26x + 8x^2$
   J $g[f(x)] = 44 - 38x + 8x^2$