MATH 2250 - Royal Homework Name _____
Sections 2.5, 2.6 (Incl. Asymptotes), 3.1
Remember to always show all supporting work.

1. (2 points) (See WeBWorK 2.5 # 14) Define $h(2)$ in a way that extends $h(t) = \dfrac{t^2 + 4t - 12}{t - 2}$ to be continuous at $t = 2$. *Use the definition of continuity (three-item continuity checklist) to explain why the new function really is continuous at* $t = 2$.

   Define: $h(2) =$ _____

2. (2 points) (See WeBWorK 2.6 # 3) Find $\lim\limits_{x \to \infty} 6e^{-x} \sin(x)$ and *explain why your answer is correct.*

3. (2 points) (See WeBWorK Asymptotes # 6) Determine the slant asymptote of $y = \dfrac{x^2 + 8}{x + 5}$.

4. (2 points) (See WeBWorK 3.1 # 5) Find the slope of the function $f(x) = \dfrac{x}{x - 10}$ at the point $(19, 19/9)$. Then find an equation for the line tangent to the graph at the given point.

   Slope of function:

   Equation for tangent line:

5. (2 points) How is everything going?