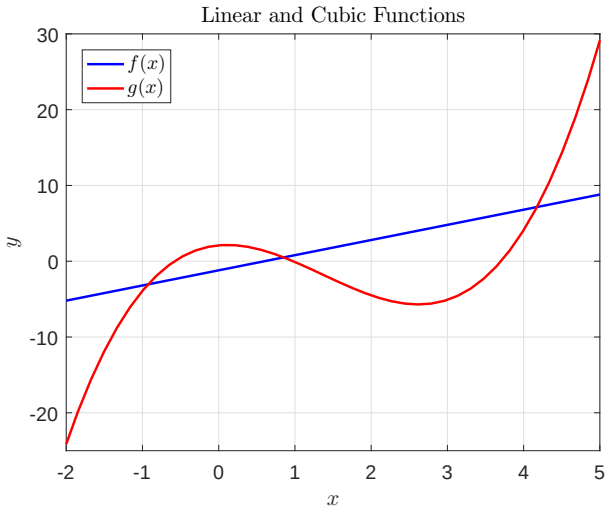
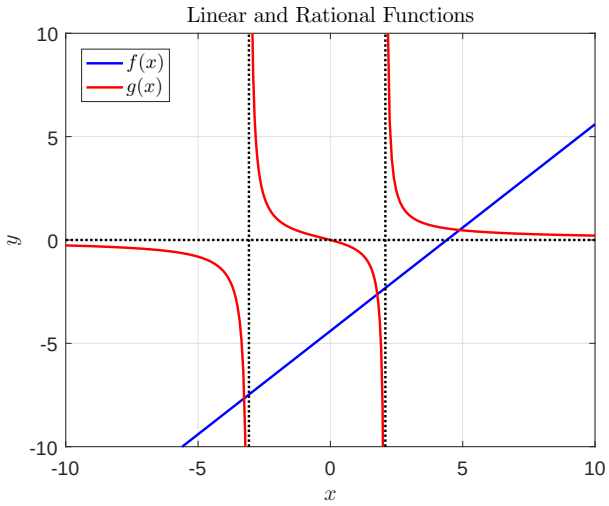
There were **2** WeBWorK problems, which had written parts.

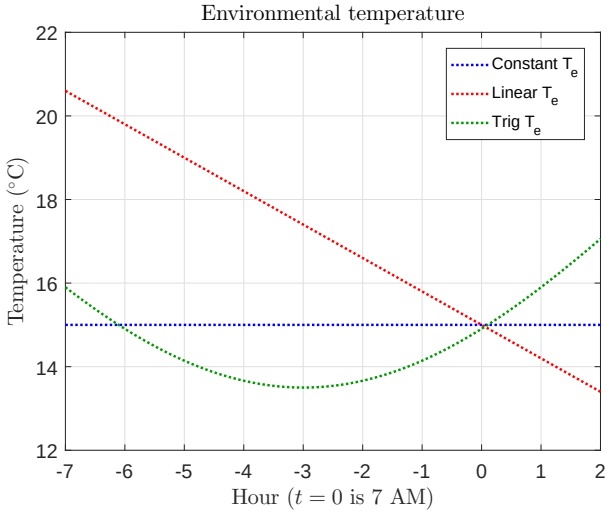
18.(5 pts) b. Below is a graph of a linear function $f(x)$ and a cubic function $g(x)$. The graph shows all intercepts of both functions and the points of intersection between the two functions.



d. Below is a graph of a linear function $f(x)$ and a rational function $g(x)$. The graph shows all intercepts of both functions and the points of intersection between the two functions. Since the power in the numerator is less than the power in the denominator, there is a horizontal asymptote at $y = 0$. The vertical asymptotes occur where the denominator is zero, solving a basic quadratic. All points of intersection were found with Maple by setting the functions equal to each other, $f(x) = g(x)$.

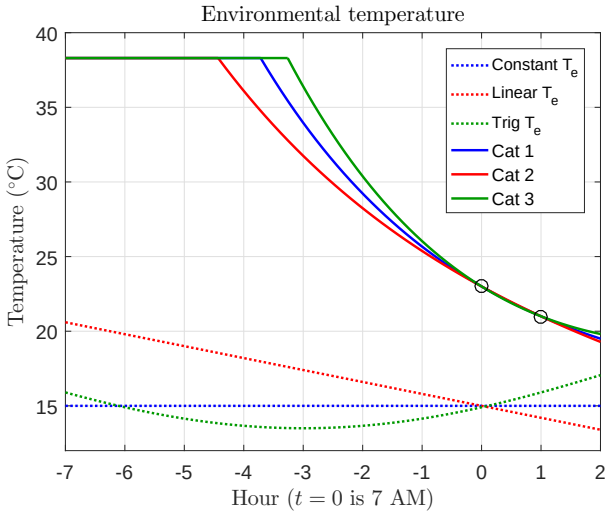


19.(7 pts) d. Below we show a graph of the models for the environmental temperatures. The



constant temperature is a reasonable approximation if the night temperature doesn't vary much. The linearly decreasing function is reasonable for short periods of time where the temperature is decreasing, but early morning temperatures usually start increasing around 4 or 5 AM. The trig function model would be the best over a longer period of time.

Below is a graph that includes the environmental temperature along with the body temperature of the cat. We see the small variation of the model of the environment compared to the cat body temperature change. The variation in time differences for the time of death are about



50 minutes. However, there are many factors that could influence this model. The greatest error would probably be from the two closely timed measurements of the body temperature. More measurements would improve the model predictions. This model does show that the environmental model does have a significant effect on the predicted time of death, so choosing a good environmental model could be significant. Finally, one could consider a different law of cooling, which is more appropriate for this problem, though this is less likely to improve the results.