1. (6 points) Let \( f(x) = \frac{(3x - 5)(x + 4)}{x(x - \pi)(x + \pi)} = \frac{3x^2 + 7x - 20}{x^3 - \pi^2 x} \). Find each of the following.

(a) the zero(s) of \( f(x) \)

(b) the horizontal asymptote of \( f(x) \)

(c) the vertical asymptote(s) of \( f(x) \)
2. (4 points) On a bicycle, you pedal turning the front sprocket (whose radius is 4 inches) at a rate of 190 RPM while the rear wheel spins at 422 RPM. What is the radius of the rear sprocket?