Written Homework 11 Name_____

Remember to show all your work and use proper notation throughout.

1. Let $f(x)=\dfrac{5x^2-1}{3x^2+7x+2}$. Find the following:

A. *x*-intercept(s) B. *y*-intercept C. vertical asymptote(s) D. horizontal asymptote(s)

2. Let $g(x)=\ln\left(x+3\right)+2$. Find the following:

A. *x*-intercept(s) B. *y*-intercept C. vertical asymptote(s) D. horizontal asymptote(s)

3. Let $p(t)=\dfrac{5}{t+1}$. Find $\dfrac{p(t+h)-p(t)}{h}$ and simplify as much as possible.

4. Solve for the indicated variable:

A. For *y*: $6\left(6^{y}\right)^{3}=\sqrt[4]{6}$ B. For *u*: $3^{4u+1}=e^{1-2u}$

C. For *x*: $2\log_a(x)=\log_a(12-x)$ D. For *t*: $\ln(3t+2)=2+\ln(t-5)$

E. For *z*: $\dfrac{z^4+5z^3}{2z-1}\geq 0$

5. Simplify as much as possible: $\dfrac{(x+3)^{2/3}\cdot 2x-x^2\cdot\dfrac{2}{3}(x+3)^{-1/3}}{(x+3)^{4/3}}$