Math 181 Honors Quiz 5 Version A

1. Use the δ-ϵ definition of limit to verify $\lim\limits_{x \to 3} \dfrac{1}{x + 2} = \dfrac{1}{5}$.

2. Divide $x^4 + 3x^3 - 4x^2 - 6x + 4$ by $x^2 - 2$ using long division.

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3. Suppose
$$\lim_{x \to 2} f(x) = 5 \qquad \text{and} \qquad \lim_{x \to 2} g(x) = 7.$$
Use the δ-ϵ definition of limit to verify $\lim_{x \to 2} \big(f(x) + g(x)\big) = 12$.

4. Find the domain of the function $f(x) = \dfrac{2}{\sqrt{|x + 1| - 3}}$.