QUIZ 6 - MATH 111 Friday, October 18

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Read each problem **very carefully** before starting to solve it and do only what is asked. Each problem is worth around 5 points. It is necessary to show **all** your work. Correct answers without explanations are worth 0 points. GOOD LUCK!!

1. [6 points] Use the Remainder Theorem to find in two different ways the remainder of the division
$$f(x) \div (x+2),$$
where $f(x) = x^4 + 7x^3 - 5x + 1$.

2. [6 points] Consider

$$f(x) = 6x^3 + 19x^2 + 8x - 5.$$

(a) Guess a small number a (close to 0), such that $f(a) = 0$.

(b) Using your guess from Part (a) and the Factor Theorem, find a factor of $f(x)$.

(c) Use the factor you found in Part (b) to find all other factors and all roots (that is, x-intercepts) of $f(x)$.