

MTH 495/595 Homework Topic 7

1. For each of the following, use the Power, Constant Multiple and Sum Rules (as appropriate) to determine  $f'(x)$ . Carefully show your work, don't skip steps. Give your answers without negative exponents.

a.  $f(x) = ax^3 + bx^2 + cx + d$ ,  $a, b, c, d$  any real numbers.

b.  $f(x) = \frac{2}{7}x^7 + \frac{1}{3}x^3 + \frac{3}{2}x^2 - 7x + 165$

c.  $f(x) = 5\sqrt[3]{x} + 2x$

d.  $f(x) = \frac{3}{x^4}$

e.  $f(x) = \pi + \frac{2x}{\sqrt{x}}$