today: midterm: §§ 6.2-6.4, 7.1-7.3 § 7.4 - partial fractions

tuesday:

homework 5 due (7.3.8, 7.3.22, 7.3.40, 7.4.20, 7.4.48, 7.4.50) § 4.4 - l'Hôpital's rule

wednesday:

mslc partial fractions workshop in CH 042 @ 12:30, 1:30, 3:30

thursday, 5 november:

§ 7.8 - improper integrals mslc l'Hôpital's rule workshop in CH 042 @ 12:30, 3:30

friday, 6 november:

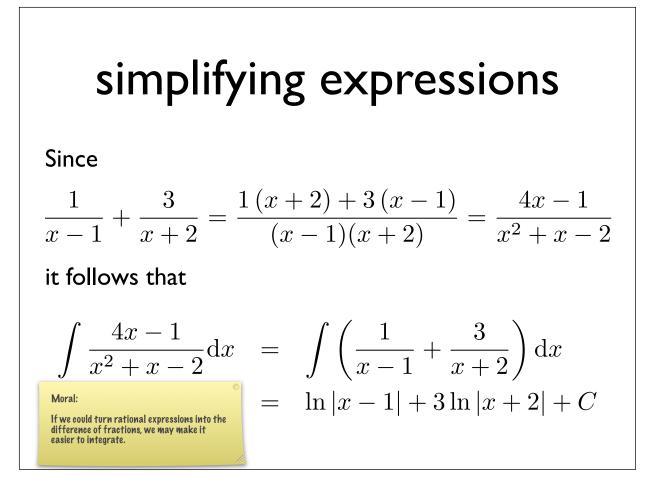
last drop day webwork 5 due @ 11:55 pm mslc webwork 5 workshop in SEL 040 @ 12:30, 1:30, 2:30, 3:30, 4:30

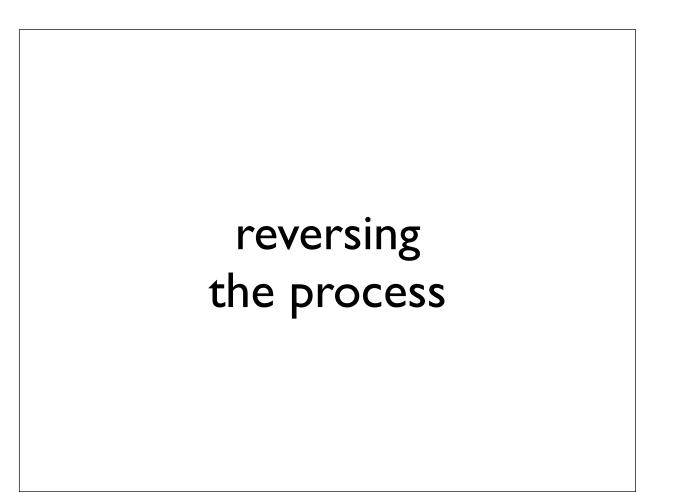
simplifying expressions

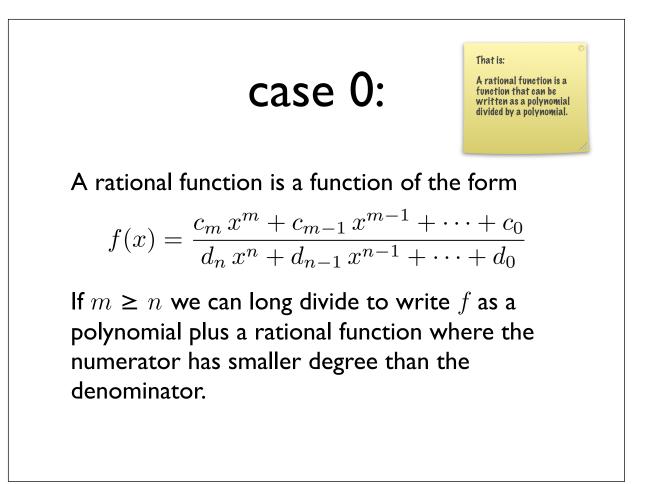
Recall:

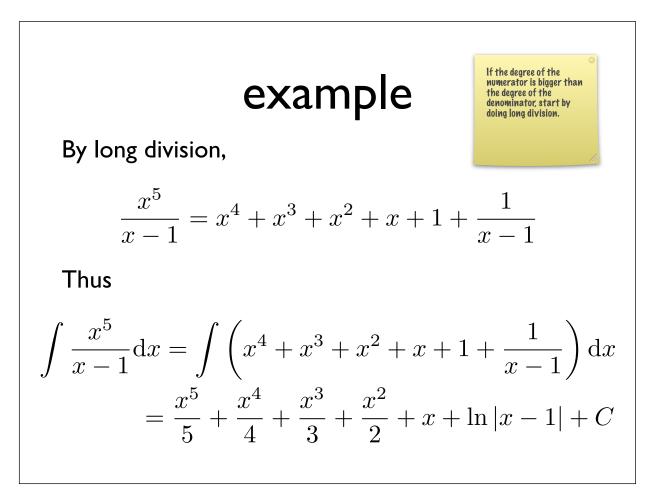
We can combine fractions by getting a common denominator and then adding. For example,

$$\frac{1}{x-1} + \frac{3}{x+2} = \frac{1(x+2) + 3(x-1)}{(x-1)(x+2)} = \frac{4x-1}{x^2 + x - 2}$$









After we do long division, we are left with rational functions where the degree of the numerator is smaller than the degree of the denominator.

case i:

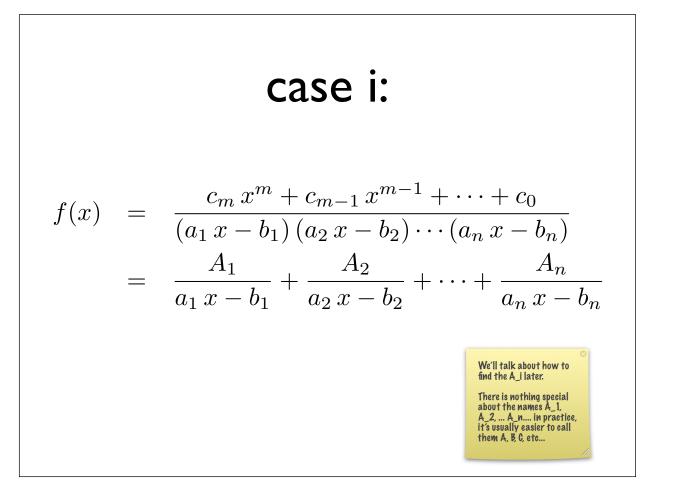
Ask: How would we get this denominator from combining fractions?

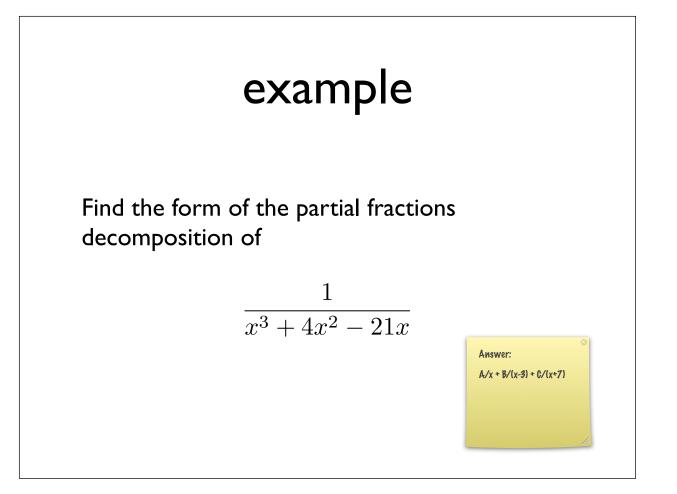
Suppose we have a rational function

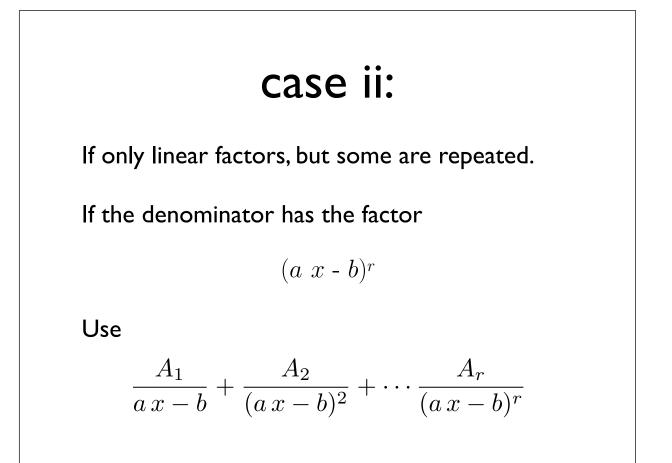
$$f(x) = \frac{c_m x^m + c_{m-1} x^{m-1} + \dots + c_0}{d_n x^n + d_{n-1} x^{n-1} + \dots + d_0}$$

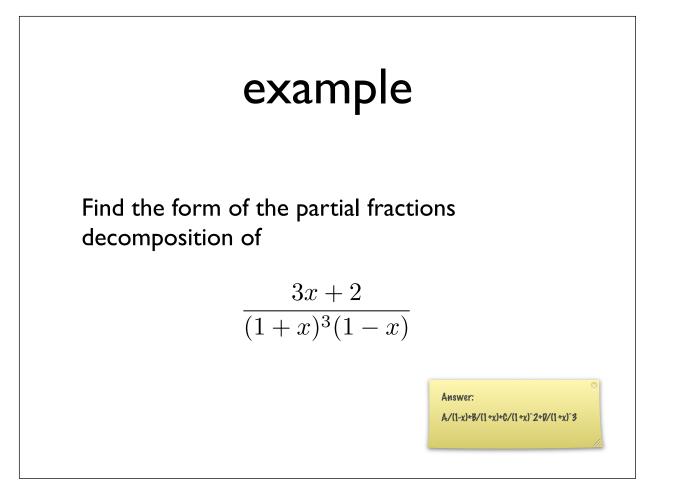
with m < n whose denominator can be decomposed into distinct linear factors:

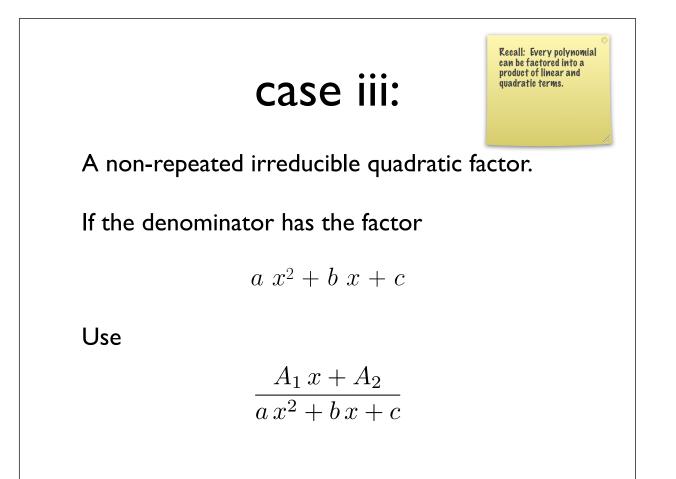
$$f(x) = \frac{c_m x^m + c_{m-1} x^{m-1} + \dots + c_0}{(a_1 x - b_1) (a_2 x - b_2) \cdots (a_n x - b_n)}$$

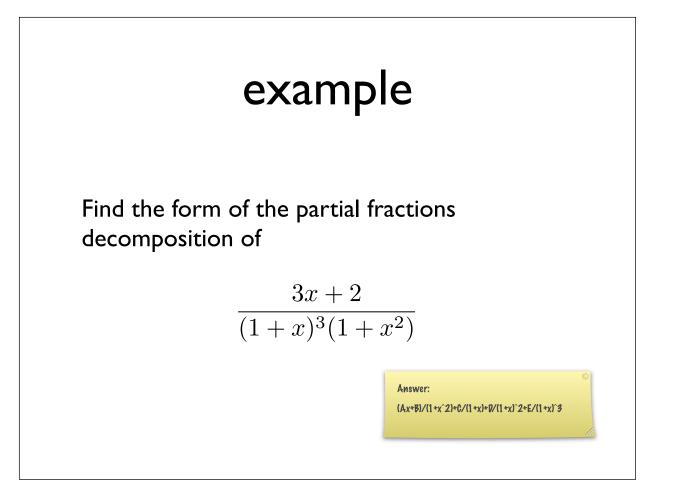


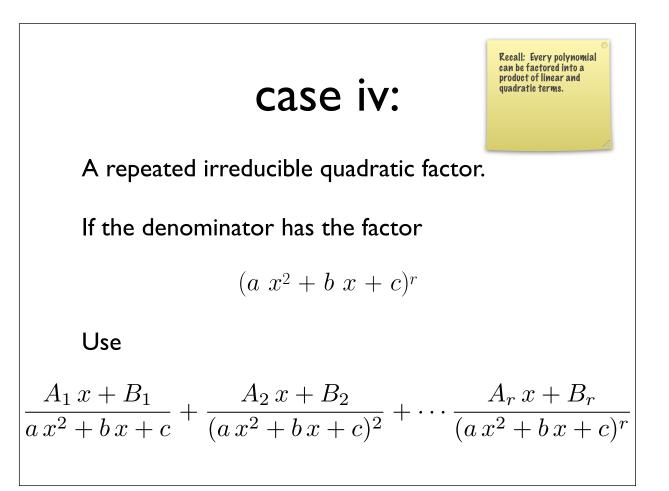


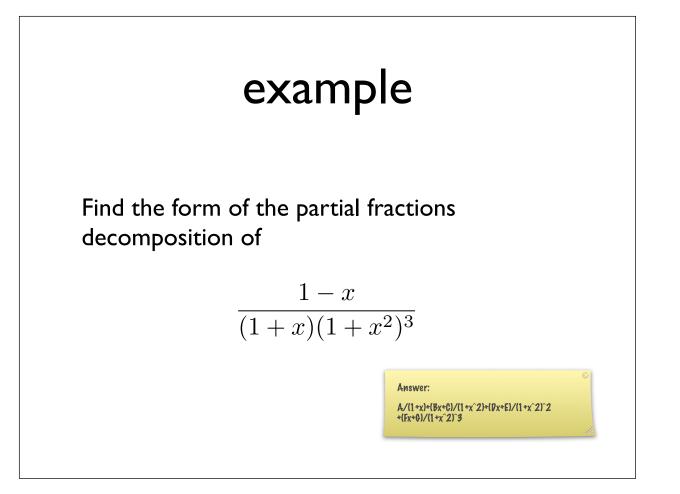


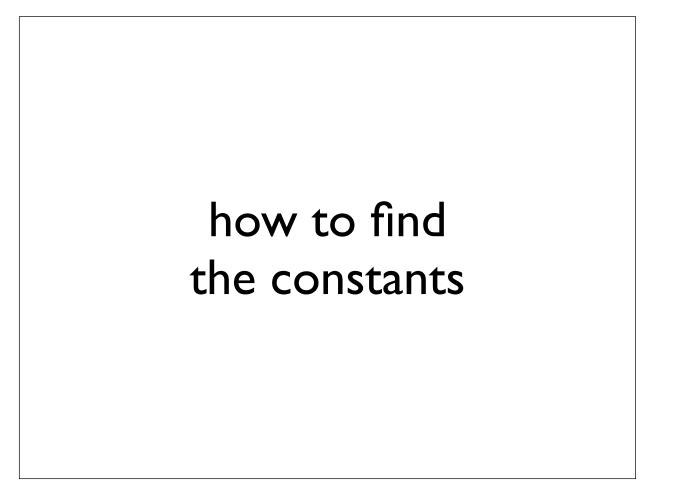






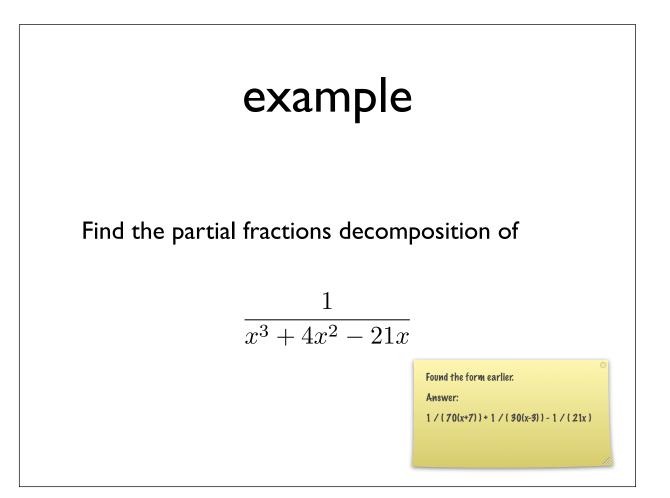






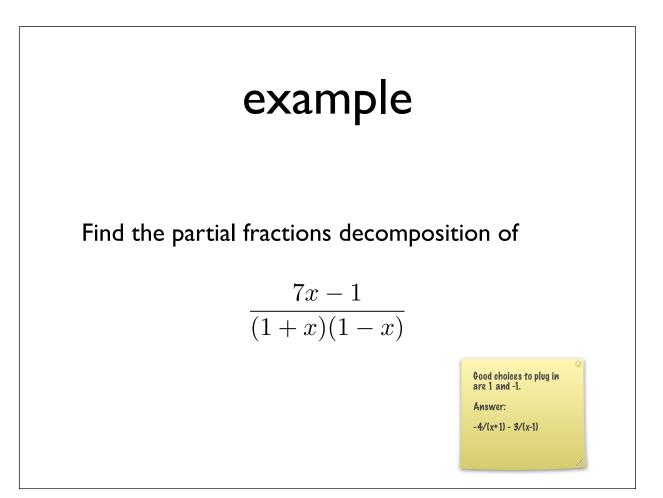
option I

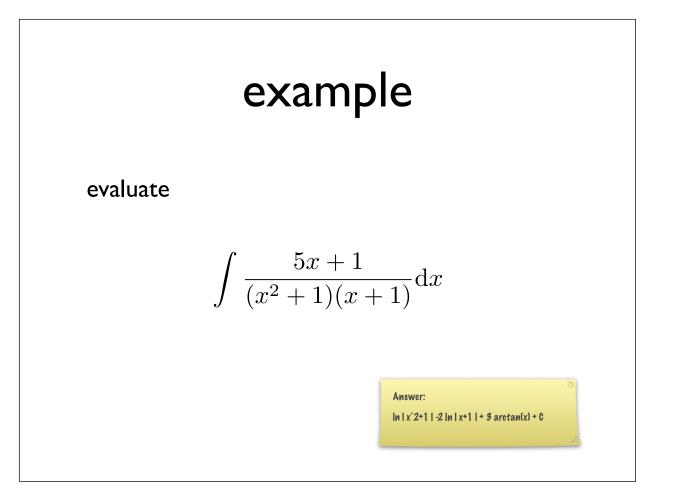
- cross multiply
- denominators become the same (so ignore)
- match coefficients on 1, x, x^2 , etc...

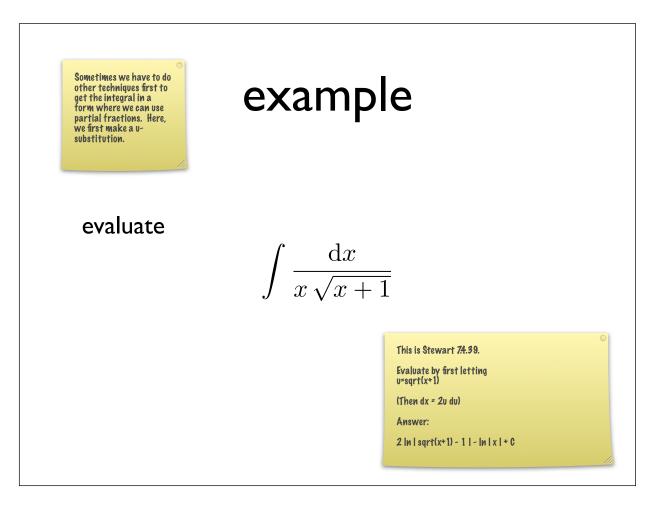


option II

- cross multiply
- denominators become the same (so ignore)
- plug in various values for x to get a system of equations, solve







coming soon

- read § 4.4
- homework 5 due next tuesday
- start webwork 5, due next friday
- start extra credit project 2, due 16 november @ 6:00 am