

SECTION 3.4: INTEGRATION BY PARTIAL FRACTIONS

1. Express the rational function as a sum of simpler rational functions. That is: **expand in partial fractions**.

(a) *like 3.4 #182* $\frac{2}{(x-1)(x-3)} =$

(b) *3.4 #183* $\frac{x^2 + 1}{x(x+1)(x+2)} =$

(c) *3.4 #188* $\frac{1}{(x-1)(x^2+1)} =$

2. Evaluate the integrals using partial fractions.

(a) *3.4 #204* $\int \frac{2}{x^2 - x - 6} dx =$

(b) *like 3.4 #211* $\int \frac{x+3}{(x^2+1)(x-4)} dx =$

(c) *like 3.4 #203* $\int_1^2 \frac{2-x}{x^2+x} dx =$

(d) *3.4 #227; hint: start with a substitution* $\int \frac{1}{1+e^x} dx =$