Worksheet 3

Name:

1. Indicate the correct partial fraction decomposition for each of the following integrals. You don't need to solve for the constants. I only want the general form of the decomposition.

(a) $\displaystyle\int \frac{x^2+1}{x^3+2x^2-3x}\,dx$

(b) $\displaystyle\int \frac{x+1}{(x-\pi)(x-3)^3}\,dx$

(c) $\displaystyle\int \frac{2x^2-x-1}{(x^2+9)(x+20)(x-2)^2}\,dx$

2. Rewrite the integrals using an appropriate substitution. You do not need to solve them. Pay close attention to bounds of integration.

(a) $\displaystyle\int \frac{1}{\sqrt{5-9t^2}}\,dt$

(b) $\displaystyle\int_0^{\frac{1}{8}} \sqrt{1-16y^2}\,dy$

(c) $\displaystyle\int \frac{x}{\sqrt{1-x^2}}\,dx$