

Homework #9.

1. Use trigonometric substitutions to compute the following integrals:

FIVE STAR.
★★★★★

a) $\int \frac{dx}{x^2 \sqrt{4-x^2}}$;

b) $\int \frac{dx}{(x^2+4)^{3/2}}$;

FIVE STAR.
★★★★★

c) $\int \frac{\sqrt{x^2-25}}{x} dx$;

d) $\int_0^{\sqrt{3}/2} \frac{t^2}{(1-t^2)^{3/2}} dt$;

FIVE STAR.
★★★★★

e) $\int_0^{3/5} \sqrt{9-25x^2} dx$;

f) $\int \frac{x^2}{\sqrt{2x-x^2}} dx$.

FIVE STAR.
★★★★★

Hint: $2x-x^2 = 1-(x-1)^2$.