

MATH 215 WORKSHEET #15

Compute the following integrals.

$$(1) \int \frac{1}{a-x} dx$$

$$(2) \int \frac{1}{x^2 + 6x + 11} dx$$

$$(3) \int \frac{x+7}{x^2+7} dx$$

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

$$(5) \int_0^1 \frac{4}{(1+2x)^3} dx$$

$$(6) \int xe^{2x} dx$$

$$(7) \int_0^{\frac{\pi}{2}} x \cos x dx$$

$$(8) \int_0^1 xe^{-x} dx$$

$$(9) \int \arctan x dx$$

$$(10) \int x \arctan x dx$$

$$(11) \int_1^2 \sqrt{x} \ln x dx$$

(12) Use a definite integral to find an approximation of $\frac{\pi}{4}$.