

1. (10 total points) Evaluate the following indefinite integrals.

(a) (5 points) $\int \frac{x^3 + 3x^2 + 4x + 4}{x^2 + 2x - 3} dx$

(b) (5 points) $\int \frac{dt}{\sqrt{t^2 - 6t + 13}}$

2. (10 total points) Evaluate the following definite integrals.

(a) (5 points) $\int_0^{\pi/6} \tan^3(2x) \sec(2x) dx$

(b) (5 points) $\int_0^{\pi} e^{\cos t} \sin 2t dt$

1. (10 total points) Evaluate the following indefinite integrals.

(a) (5 points) $\int \frac{x}{\sqrt{x+2}} dx$

(b) (5 points) $\int e^{2x} \sec(e^{2x}) \tan^3(e^{2x}) dx$

2. (10 total points) Evaluate the following definite integrals.

(a) (5 points) $\int_1^2 \frac{\ln x}{x^3} dx$

(b) (5 points) $\int_2^3 \sqrt{4x - x^2} dx$