Question 1. *(1 mark each)* Integrate the following indefinite integrals:

a.

$$\int \frac{1}{x^{1/3}}\,dx$$

b.

$$\int \sec x\,dx$$

c.

$$\int \cot x\,dx$$

d.

$$\int \frac{1}{x\sqrt{x^2-11}}\,dx$$

e.

$$\int \frac{1}{x}\,dx$$

f.

$$\int \sin x\,dx$$

Question 2. *(4 marks)* Find f.

$$f''(\theta) = 3\sin\theta + 2\cos\theta \quad f(0) = 0,\; f(\pi) = 0$$