Section 5.4: Indefinite Integrals and the Net Change Theorem

(1) In this section, we formally introduce the indefinite integral symbol to mean the antiderivative. Explain why it makes some level of sense to use the same symbol to means both "take the anti-derivative" and "find the area under the curve". How do we know which one we should do? What do we get when we do an indefinite integral (number, function, etc.)? A definite integral?

(2) Review the table of indefinite integrals in your book. Write out any ones you are not already comfortable with. Write down at least three examples in the form of the example provided.

e.g. The general antiderivative of $2x$ is the family of functions $x^2 + C$ since the derivative of $x^2 + C$ is 2x.

(3) What does the Net Change Theorem say? Write the formal statement then explain it in your own words.

(4) Give several examples of application problems where we could use the Net Change Theorem.

Extra Practice in Book: 5.4: 1, 7, 9, 11, 21, 29, 49, 51, 53, 56, 64,