

Assignment 11: Elementary functions  
Chapter 3 of BC  
Due Wednesday, April 5, 2023

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February 26, 2023

**Problem 1** Describe the complex tangent and arctangent functions.

**Problem 2** (Exercise 3.40.1 in BC) Discuss the value(s) of

$$\tan^{-1}(2i).$$

(10 presentation points)

**Problem 3** (Exercise 3.40.1 in BC) Discuss the value(s) of

$$\tan^{-1}(1 + i).$$

(10 presentation points)

**Problem 4** (Exercise 3.40.1 in BC) Discuss the value(s) of

$$\cosh^{-1}(-1).$$

(10 presentation points)

**Problem 5** (Exercise 3.40.1 in BC) Discuss the value(s) of

$$\tanh^{-1}(0).$$

(10 presentation points)

**Problem 6** (Exercise 3.40.2 in BC) Discuss the value(s) of

$$\sin^{-1}(2).$$

(10 presentation points)

**Problem 7** (3.40.5 in BC) Discuss the formula

$$\frac{d}{dw} \sin^{-1} w = \frac{1}{\sqrt{1-w^2}}.$$

(10 presentation points)

**Problem 8** (3.40.6 in BC) Discuss the formula

$$\frac{d}{dw} \tan^{-1} w = \frac{1}{1+w^2}.$$

(10 presentation points)

**Problem 9** (3.40.5 in BC) Discuss the formula

$$\tan^{-1} w = \frac{i}{2} \log \frac{i+w}{i-w}.$$

(10 presentation points)

**Problem 10** (3.40.7 in BC) Discuss the formula

$$\cosh^{-1} w = \log[w + \sqrt{w^2 - 1}].$$

(10 presentation points)