

MATH 31B: Week 2

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Questions

Question 1. Compute without calculator:

(a) $\arcsin(\sin \frac{\pi}{3})$

(c) $\arctan(\tan \frac{3\pi}{4})$

(b) $\arcsin(\sin \frac{4\pi}{3})$

Question 2. Compute without calculator:

1. $\cos(\arctan(x))$

2. $\cot(\sec^{-1}(x))$ for $x \geq 1$

Question 3. Find the derivatives of the following functions:

(a) $\arcsin(e^x)$

(c) $\sec^{-1}(t + 1)$

(b) $\arccos(\ln(x))$

(d) $\tan^{-1}\left(\frac{1+t}{1-t}\right)$.

Question 4. Evaluate the following integrals:

(a) $\int \frac{dt}{\sqrt{1-16t^2}}$

(c) $\int \frac{\ln(\cos^{-1}(x))dx}{(\cos^{-1}(x))\sqrt{1-x^2}}$.

(b) $\int \frac{dx}{x\sqrt{x^4-1}}$

Homework Questions

7.8.8, 7.8.57, 7.8.60, 7.9.55, 9.4.1, 9.4.15