PRINTABLE VERSION

Quiz 17

Question 1

Determine the exact value of $\csc^{-1}\left(-\sqrt{2}\right)$.

a) $\frac{\pi}{2}$

b) $-\frac{\pi}{2}$

c) $-\frac{\pi}{4}$

d) $-\frac{3\pi}{4}$

e) $\frac{\pi}{4}$

Question 2

Determine the exact value of $\arcsin\left(\sin\left(\frac{7\pi}{4}\right)\right)$.

a) $\frac{\pi}{2}$

b) $\frac{\pi}{4}$

c) $-\frac{\pi}{4}$

d) $-\frac{\pi}{2}$

e) $-\frac{3\pi}{4}$

Question 3

Determine the exact value of $\cos\left(2\arcsin\left(\frac{1}{2}\right)\right)$.

a) $-\frac{1}{2}$

b) $\frac{1}{2}$

c) $-\frac{1}{4}$

d) $\frac{1}{4}$

e) 1

Question 4

Differentiate $y = \tan^{-1}(x+5)$.

a) $\frac{1}{2x^2+10x+25}$

b) $\frac{1}{x^2+5x+26}$

c) $\frac{1}{2x^2+10x+24}$

d) $\dfrac{1}{x^2+10\,x+26}$

e) $\dfrac{1}{x^2-10\,x+26}$

Question 5

Differentiate $y=5\,e^{6\,x}\arcsin(x)$.

a) $\dfrac{30\mathrm{e}^{6x}}{\sqrt{1+x^2}}$

b) $\dfrac{30\mathrm{e}^{6x}}{\sqrt{1-x^2}}$

c) $30\mathrm{e}^{6x}\arcsin(x)+\dfrac{5\mathrm{e}^{6x}}{\sqrt{1+x^2}}$

d) $30\mathrm{e}^{6x}\arcsin(x)+\dfrac{5\mathrm{e}^{6x}}{\sqrt{1-x^2}}$

e) $5\mathrm{e}^{6x}\arcsin(x)+\dfrac{5\mathrm{e}^{6x}}{\sqrt{1-x^2}}$

Question 6

Differentiate $y=\ln(\arctan(3\,x+2))$.

a) $\dfrac{3}{\left(9\,x^2+12\,x+5\right)\arctan(x)}$

b) $\dfrac{-3}{\left(9\,x^2+12\,x+5\right)\arctan(3\,x+2)}$

c) $\dfrac{1}{\left(9\,x^2+12\,x+5\right)\arctan(3\,x+2)}$

d) $\dfrac{3}{\left(9\,x^2+12\,x+5\right)\arctan(3\,x+2)}$

e) $\dfrac{-1}{\left(3\,x^2+4\,x+1\right)\arctan(3\,x+2)}$

Question 7

Differentiate $y=\arctan(\ln(5\,x+7))$.

a) $\dfrac{5}{1+[\ln(x)]^2}$

b) $\dfrac{5}{(5\,x+7)\left(1+[\ln(5\,x+7)]^2\right)}$

c) $\dfrac{5}{(5\,x+7)(1+\ln(5\,x+7))}$

d) $\dfrac{1}{(5\,x+7)\left(1+[\ln(5\,x+7)]^2\right)}$

e) $\dfrac{-5}{(5\,x+7)\left(1+[\ln(5\,x+7)]^2\right)}$

Question 8

Differentiate $y=\arcsin\left(\sqrt{9-7x^2}\right)$.

a) $\dfrac{-7x}{\sqrt{9-7x^2}}$

b) $\dfrac{x}{\sqrt{(7x^2-8)(9-7x^2)}}$

c) $\dfrac{-x}{\sqrt{(7x^2-8)(9-7x^2)}}$

d) $\dfrac{7x}{\sqrt{(7x^2-8)(9-7x^2)}}$

e) $\dfrac{-7x}{\sqrt{(7x^2-8)(9-7x^2)}}$

Question 9

Differentiate $y=\sqrt{25-x^2}+5\arcsin\left(\dfrac{x}{5}\right)$.

a) $\sqrt{\dfrac{5+x}{5-x}}$

b) $\sqrt{\dfrac{5-x}{5+x}}$

c) $\sqrt{\dfrac{x-5}{5+x}}$

d) $-\sqrt{\dfrac{5-x}{5+x}}$

e) $\sqrt{x^2-25}$

Question 10

Differentiate $y = \arctan\left(\frac{e^{3x}}{3}\right)$.

a) $\frac{3e^{3x}}{9 + e^{6x}}$

b) $\frac{9e^{3x}}{9 + e^{6x}}$

c) $\frac{9e^{3x}}{\sqrt{9 - e^{6x}}}$

d) $\frac{3e^{3x}}{\sqrt{9 - e^{6x}}}$

e) $\frac{9e^{3x}}{9 - e^{6x}}$