Math 222-Quiz-3(53402)

**Choose the correct answer**

1. Let$f\left(x\right)=x^{5}$. Find a value $c$ between $x=0$ and $x=3$ such that The rate of change of $ f\left(x\right)$ is equal to the average rate of change of $f\left(x\right)$

(a) $\frac{5}{\sqrt[4]{3}}$ (b) $-\frac{3}{\sqrt[4]{5}}$ (c) $\frac{5}{\sqrt[4]{3}}$ (d) $\frac{3}{\sqrt[4]{5}}$

1. The derivative $\frac{dy}{dx}$ of $ y=sinx+\frac{2}{e^{3x}}+π^{10}$ is equal to

(a) $cosx-\frac{6}{e^{3x}}+10π^{9}$ (b) $cosx-\frac{2}{e^{3x-1}}$ (c) $cosx-\frac{6}{e^{3x}}$ (d) $-cosx-\frac{6}{e^{3x}}$

1. If $ y=asinx+bcosx$ then the value of $y^{2}+\left(\frac{dy}{dx}\right)^{2}$ is equal to

(a)$ a^{2}+b^{2}$ (b) $ab$ (c) $ a^{2}-b^{2}$ (d) $0$

1. Let $ f\left(x\right)=x^{2}sin\frac{1}{x},$ $x\ne 0$ then $\frac{df}{dx}$ at $x=\frac{2}{π}$ is equal to

(a)$ o$ (b) 1 (c) $\frac{4}{π}$ (d) $\frac{π}{2}$

1. The value of $x$, where $f\left(x\right)=\frac{5}{2}x^{2}-e^{x}$ for which $f"\left(x\right)=0$ is equal to

(a) $5e$ (b) $ln5$ (c) 0 (d) $e^{5}$

1. Given $y=ln\sqrt{tanx}$ then the value of $\frac{dy}{dx}\left(\frac{π}{4}\right)$ is equal to

 (a) $ \frac{1}{\sqrt{2}}$ (b) $1$ (c) $0$ (d) $\sqrt{2}$

1. The average rate of change of $ f\left(x\right)=\sqrt{x+1}$ from $x=8$ to $x=3$ is equal to

 (a) $-\frac{1}{5}$ (b) $\frac{1}{5}$ (c) $5$ (d) $-5$

1. The rate of change of $ f\left(t\right)=4sin2t+3t$ at$t=0.6$ is equal to

 (a) $5.8989$ (b) $-2.2382$ (c) $5.0530$ (d) 3.4043

1. If $siny=ycos2x$ then $\frac{dy}{dx}$ at $y=\frac{π}{4}$ is equal to

(a)$ \frac{2y}{cosy}$ (b) $\frac{2}{cosy}$ (c) $0$ (d) $-\frac{2y}{cosy}$

1. If $ x^{2}+3=ln\left(5xy^{2}\right)$, then $\frac{dy}{dx}$ is equal to

 (a) $\frac{6yx^{2}+y}{2x}$ (b) $\frac{6xy^{2}-y}{2y}$ (c) $\frac{6yx^{2}-x}{2y}$ (d) $\frac{6yx^{2}-y}{2x}$