Homework 5, 63.00/110.00 (57.27%)

October 22, 2019

Problem 3 score: 10/10

ok

Problem 11 score: 0/10[1]

NOT ok

$$y\cos x = x^2 + y^2$$
$$\frac{dy}{dx}\cos x + y\cdot(-\sin x) = 2x + 2y\cdot\frac{dy}{dx}$$
$$\frac{dy}{dx} - \cancel{2y\frac{dy}{dx} = 2x + y\sin x}$$

Where did $\cos x$ disappear?

Problem 15 score: 10/10

OK

Problem 22 score: 0/10[2]

$$\frac{d}{dx}g(x) + \frac{d}{dx}\left(x\sin g(x)\right) = \frac{d}{dx}\left(x^2\right)$$
$$\frac{d}{dx}g(x) + \cancel{(x\cos g(x) + \sin g(x))\frac{d}{dx}g(x)} = \frac{d}{dx}\left(x^2\right)$$
$$\frac{d}{dx}\left(x\sin g(x)\right) = \sin g(x) + x\cos g(x)\frac{d}{dx}g(x).$$

[1] similar problems: 12,17

[2] similar problems: 21

Problem 30 score: 0/10[3]

$$\frac{dy}{dx}\cdot\frac{2}{3}\cdot\frac{1}{\sqrt[3]{y}}=-\frac{2}{3}\frac{1}{\sqrt[3]{x}}\quad where did minus go?$$
$$\frac{dy}{dx}=\sqrt[3]{\frac{y}{x}}$$

Problem 39 score: 0/10[4]

$$y''=(y'(x))'=\left(-\frac{y}{x+e^y}\right)'=\frac{-\frac{dy}{dx}\cdot(x+e^y)+y\left(1+e^y\frac{dy}{dx}\right)}{(x+e^y)^2}\neq\frac{(ye^y-x)\frac{dy}{dx}+y}{(x+e^y)^2}.$$

where did $-e^y\frac{dy}{dx}$ in the denominator go?

Problem 44 score: 10/10

ok

Problem 49 score: 10/10

ok

Problem 57 score: 10/10

ok

Problem 67 score: 8/10[5]

ok, but

1. what about $c<0$ case?
2. what about $k<0$ case?
3. what about $k=0$ case?
4. when you did implicit differentiation of $x^2+2y^2=k$, did you consider points where $x=0$ or $y=0$? (-2 points for this)

[3] similar problems: 31,32
[4] similar problems: 40
[5] similar problems: 68

Problem 77 score: 5/10[6]

where is b)?

[6]similar problems: 71