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1. (1 point) Are the following differential equations exact?

(a) [Choose/Exact/Not Exact] $\left(y^2+x^2\right)\dfrac{dy}{dx}+(2xy+1)=\dfrac{3}{x}-1.$

(b) [Choose/Exact/Not Exact] $(y+\cos(y)-\sin(x))\,dx+(x-x\sin(y))\,dy=0.$

(c) [Choose/Exact/Not Exact] $y\,dx+y\,dy=0.$

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2. (1 point)
The following differential equation is exact.
Find a function $F(x,y)$ such that $F(x,y)=C$ is a solution to the differential equation

$$y dy - x dx = 0.$$

$F(x,y) =$ _____

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3. (1 point)
Solve the following differential equation:

$(y-x^5)dx+(x+y^5)dy=0.$

_____ = constant. help (formulas)

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4. (1 point)
Enter a value for π
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