

Please PRINT your name _____

No calculators, cell phones, computers, notes, etc.

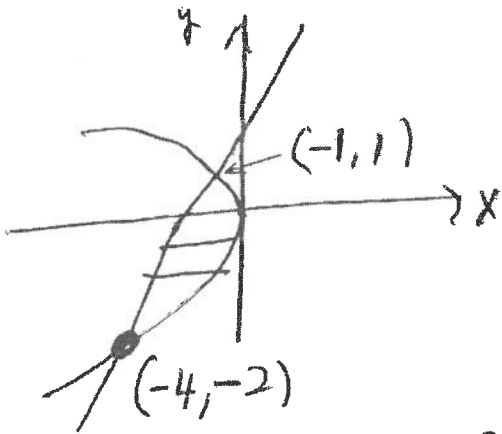
Circle your answer. Make your work correct, complete and coherent.

Please take a picture of your quiz (for your records) just before you turn the quiz in. I will e-mail your grade and my comments to you. I will keep your quiz.

The quiz is worth 5 points. The solutions will be posted on my website later today.

Quiz 6, November 17, 2022

Find the area of the region in the xy plane bounded by $x = -y^2$ and $y = x + 2$.



intersection $y = -y^2 + 2$
 $y^2 + y - 2 = 0$
 $(y+2)(y-1) = 0$
 $y = -2, 1$

$$\int_{-2}^1 \int_{y-2}^{-y^2} dx dy = \int_{-2}^1 x \Big|_{y-2}^{-y^2} dy = \int_{-2}^1 -y^2 - (y-2) dy = \int_{-2}^1 (-y^2 - y + 2) dy$$
$$= \left[-\frac{y^3}{3} - \frac{y^2}{2} + 2y \right]_{-2}^1 = -\frac{1}{3} - \frac{1}{2} + 2 - \left(\frac{8}{3} - \frac{4}{2} - 4 \right)$$
$$= -3 - \frac{1}{2} + 2 + 2 + 4 = 5 - \frac{1}{2} = \boxed{\frac{9}{2}}$$