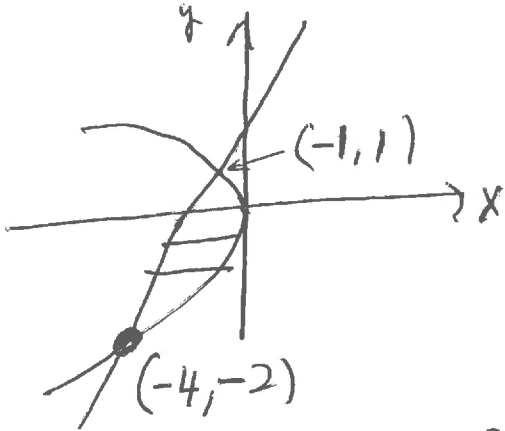**No calculators, cell phones, computers, notes, etc.**

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

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

Quiz 22, November 25, 2019

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

intersection

$y = -y^2 + 2$

$y^2 + y - 2 = 0$

$(y+2)(y-1) = 0$

$y = -2, 1$

$$\int_{-2}^{1} \int_{y-2}^{-y^2} dx\, dy = \int_{-2}^{1} x \Big]_{y-2}^{-y^2} dy = \int_{-2}^{1} -y^2 - (y-2)\, dy = \int_{-2}^{1} \left(-y^2 - y + 2\right) dy$$

$$= -\frac{y^3}{3} - \frac{y^2}{2} + 2y \Big]_{-2}^{1} = -\frac{1}{3} - \frac{1}{2} + 2 - \left(\frac{8}{3} - \frac{4}{2} - 4\right)$$

$$= -3 - \frac{1}{2} + 2 + 2 + 4 = 5 - \frac{1}{2} = \boxed{\frac{9}{2}}$$