

6. [7 points] For each of the questions below, circle **all** of the available correct answers. You must circle at least one choice to receive any credit. No credit will be awarded for unclear markings. No justification is necessary.

a. [3 points] Which $F(x)$ are antiderivatives of $f(x) = e^{x^2}$ for $x > 0$ with $F(3) = 5$?

I. $F(x) = \int_0^{x^2} e^u du + 5$

II. $F(x) = \int_3^x 5e^{u^2} du$

III. $F(x) = \frac{1}{x^2} e^{x^2} + 5$

IV. $F(x) = \int_{x^2}^9 -\frac{1}{2\sqrt{u}} e^u du + 5$

V. $F(x) = \int_3^x e^{u^2} du + 5$

VI. $F(x) = \frac{e^{x^2}}{2x} - \frac{e^9}{6} + 5$

b. [2 points] Suppose $f(x)$ is an odd function. Which values of b make the following equation true?

$$\int_{-\pi}^b \sin(f(x)) dx = 0$$

I. $b = -\pi$

II. $b = 0$

III. $b = \pi$

IV. $b = \frac{3\pi}{2}$

V. $b = 2\pi$

c. [2 points] Which of the following could be the graph of $f(x) = \int_x^{x^3} e^{\sqrt[3]{u}} du$?

