9. [6 points] Suppose that a psychology experiment is designed so that every participant receives a score that is some (positive or negative) real number. The score that a participant receives is called his or her "experimental score". The experiment is calibrated so that the probability density function of the distribution of experimental scores is standard normal, call it $g(x)$.

a. [3 points] Use a complete sentence to give a practical interpretation of the integral expression

$$\int_{-4}^{3} g(x)\,dx$$

in the context of this problem.

$\int_{-4}^{3} g(x)\,dx$ is the probability that a score is (or the proportion of scores that are) between -4 and 3.

b. [3 points] Note that $g(1) = \frac{1}{\sqrt{2e\pi}} \approx 0.24$. Which of the following is the best practical interpretation of the mathematical statement $g(1) \approx 0.24$? Circle the ONE best option.

i. The fraction of the population having experimental score equal to 1 is approximately 24 percent.

ii. The fraction of the population having experimental score equal to 0.24 is approximately 1 percent.

iii. The fraction of the population having experimental score between 0.9 and 1.1 is approximately 4.8 percent.

iv. The fraction of the population having experimental score between 0.23 and 0.25 is approximately 20 percent.

v. The fraction of the population having experimental score above 1 is approximately 76 percent.

vi. The fraction of the population having experimental score above 0.24 is approximately 1 percent.

$P(0.9 < \text{score} < 1.1) = \int_{0.9}^{1.1} g(x)\,dx$. The MID(1) approximation of that integral is $(0.2)g(1)$ ≈ 0.048.