3. [12 points] Let $f(x) = \dfrac{9-x}{(x+3)(x^2+3)}$.

a. [7 points] Split the function $f(x)$ into partial fractions with two or more terms. Do not integrate the result. Be sure to show all your work.

Answer: $f(x) =$ _____

b. [3 points] Approximate the integral $\displaystyle\int_{-9}^{-5} f(x)\,dx$ using MID(2). Write out each term in your sum. You do not need to simplify the numbers in your sum, but the letter f should not appear in your final answer.

Answer: $\displaystyle\int_{-9}^{-5} f(x)\,dx \approx$ _____

c. [2 points] Given that $f'(x)$ is decreasing on the interval $(-9, -5)$, is your answer to part **b.** an overestimate or an underestimate of $\displaystyle\int_{-9}^{-5} f(x)\,dx$? Circle your choice below. You are not required to provide any justification.

Circle one:

OVERESTIMATE UNDERESTIMATE NOT ENOUGH INFORMATION