Find the projection of the vector

A=i−2j+k

on the vector

B=4i−4j+7K

1/5

4/7

19/9

11/5

Solution

The projection of the vector $\bar{A}$ on the vector $\bar{B}$ is

$$\frac{\bar{A} \cdot \bar{B}}{|\bar{B}|} = \frac{1 \cdot 4 + (-2) \cdot (-4) + 1 \cdot 7}{\sqrt{4^2 + (-4)^2 + 7^2}} = \frac{19}{\sqrt{81}} = \frac{19}{9}.$$

Answer: 19/9.