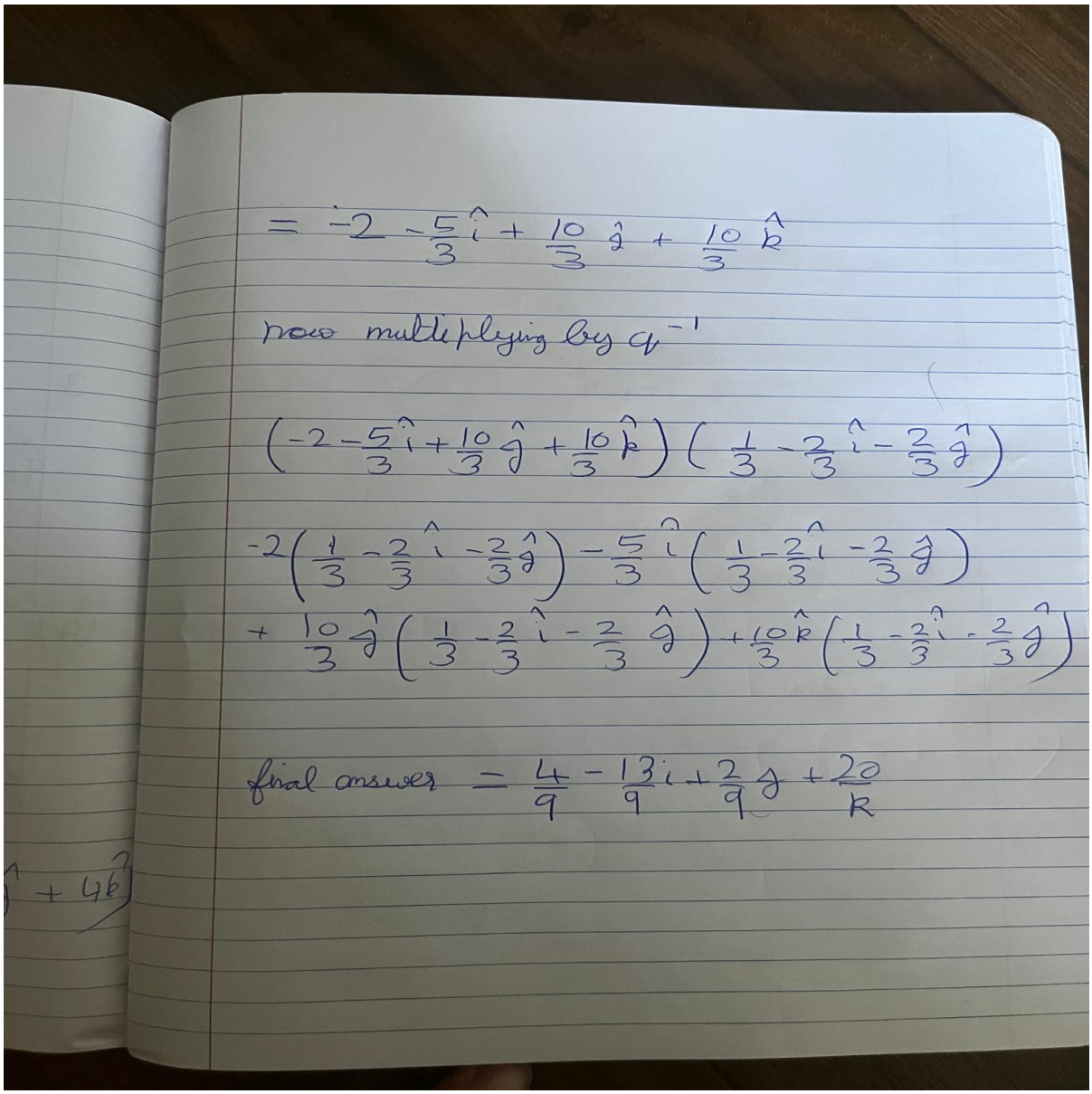
$= -2 - \frac{5}{3}\hat{i} + \frac{10}{3}\hat{j} + \frac{10}{3}\hat{k}$
now multiplying by q^{-1}
$\left(-2 - \frac{5}{3}\hat{i} + \frac{10}{3}\hat{j} + \frac{10}{3}\hat{k}\right)\left(\frac{1}{3} - \frac{2}{3}\hat{i} - \frac{2}{3}\hat{j}\right)$
$-2\left(\frac{1}{3} - \frac{2}{3}\hat{i} - \frac{2}{3}\hat{j}\right) - \frac{5}{3}\hat{i}\left(\frac{1}{3} - \frac{2}{3}\hat{i} - \frac{2}{3}\hat{j}\right)$
$+ \frac{10}{3}\hat{j}\left(\frac{1}{3} - \frac{2}{3}\hat{i} - \frac{2}{3}\hat{j}\right) + \frac{10}{3}\hat{k}\left(\frac{1}{3} - \frac{2}{3}\hat{i} - \frac{2}{3}\hat{j}\right)$
final answer $= \frac{4}{9} - \frac{13}{9}\hat{i} + \frac{2}{9}\hat{j} + \frac{20}{k}$
$+ 4\hat{k}$