

46. (a) Using Eq. 7-8 and SI units, we find

$$W = \vec{F} \cdot \vec{d} = (2\hat{i} - 4\hat{j}) \cdot (8\hat{i} + c\hat{j}) = 16 - 4c$$

which, if equal zero, implies $c = 16/4 = 4$ m.

(b) If $W > 0$ then $16 > 4c$, which implies $c < 4$ m.

(c) If $W < 0$ then $16 < 4c$, which implies $c > 4$ m.