

(1) Dados $v = (-1, 2, 0)$, $w = (2, -3, -1)$ y $u = (1, -1, 1)$, calcular:

a) $2v + 3w - 5u$,

b) $5(v + w)$,

c) $5v + 5w$ (y verificar que es igual al vector de arriba).

$$\begin{aligned} \text{a) } 2v + 3w - 5u &= 2(-1, 2, 0) + 3(2, -3, -1) - 5(1, -1, 1) \\ &= (-2, 4, 0) + (6, -9, -3) - (5, -5, 5) \\ &= (-2+6, 4+(-9), 0+(-3)) - (5, -5, 5) \\ &= (4, -5, -3) - (5, -5, 5) \\ &= (4-5, -5-(-5), -3-5) \\ &= (-1, 0, -8) \end{aligned}$$

$$\begin{aligned} \text{b) } 5(v + w) &= 5((-1, 2, 0) + (2, -3, -1)) \\ &= 5(-1+2, 2+(-3), 0+(-1)) \\ &= 5(1, -1, -1) \\ &= (5, -5, -5) \end{aligned}$$

$$\begin{aligned} \text{c) } 5v + 5w &= 5(-1, 2, 0) + 5(2, -3, -1) \\ &= (-5, 10, 0) + (10, -15, -5) \\ &= (-5+10, 10+(-15), 0+(-5)) \\ &= (5, -5, -5) \end{aligned}$$