Exercícios 11.1 - 11.4

quarta-feira, 8 de novembro de 2023 09:18

Exercício 11.1: Seja $v = (2,3)$ e $w = (-1,-2)$, encontre os vetores de

a) $j = 2v$
b) $r = -2w$
c) $p = v + w$
d) $l = v - w$

a) $j = 2v$

$= 2(2,3)$

$j = (4,6)$

b) $r = -2w$

$= -2(-1,-2)$

$r = (2,4)$

c) $p = v + w$

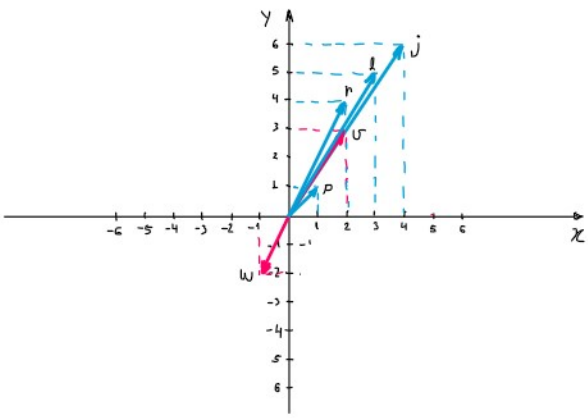
$= (2,3) + (-1,-2)$

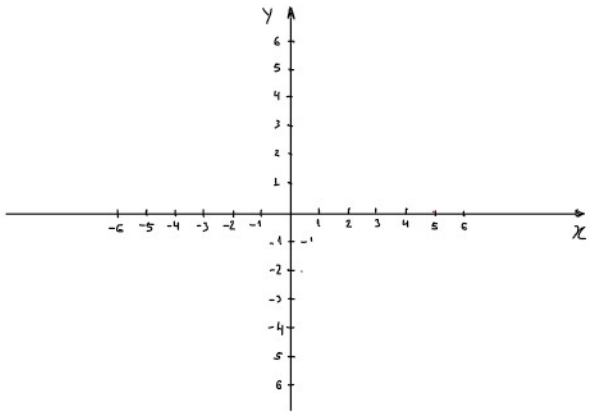
$p = (1,1)$

d) $l = v - w$

$= (2,3) - (-1,-2)$

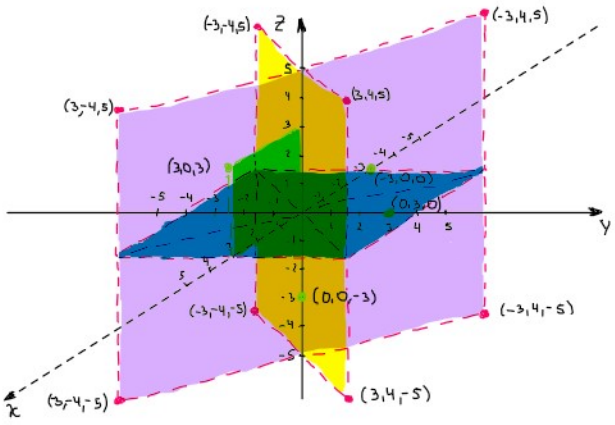
$l = (3,5)$

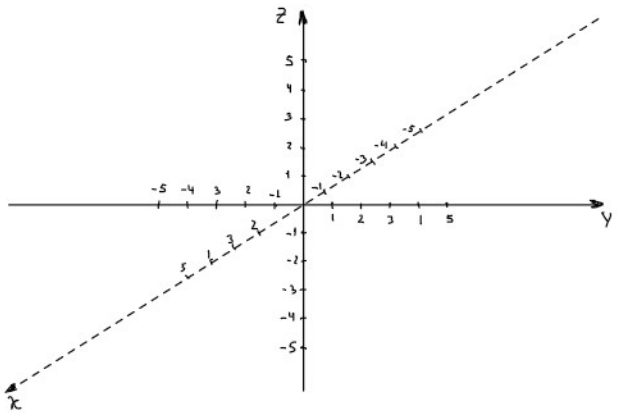




Exercício 11.2: Desenhe um sistema de coordenadas espaciais e marque os pontos cujas coordenadas são:

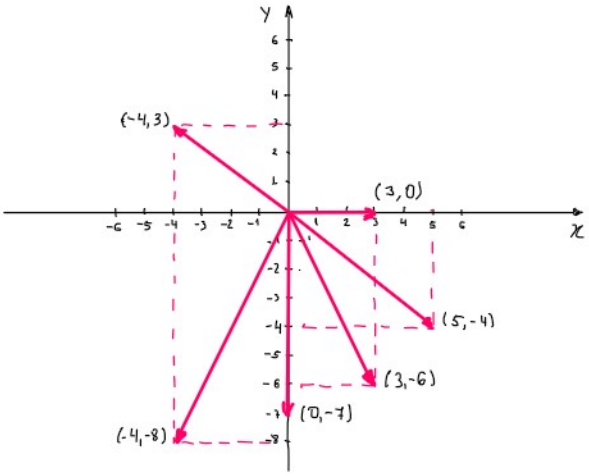
a) (3, 4, 5)
b) (-3, 4, 5)
c) (3, -4, 5)
d) (3, 4, -5)
e) (-3, -4, 5)
f) (-3, 4, -5)
g) (3, -4, -5)
h) (-3, -4, -5)
i) (-3, 0, 0)
j) (3, 0, 3)
k) (0, 0, -3)
l) (0, 3, 0)

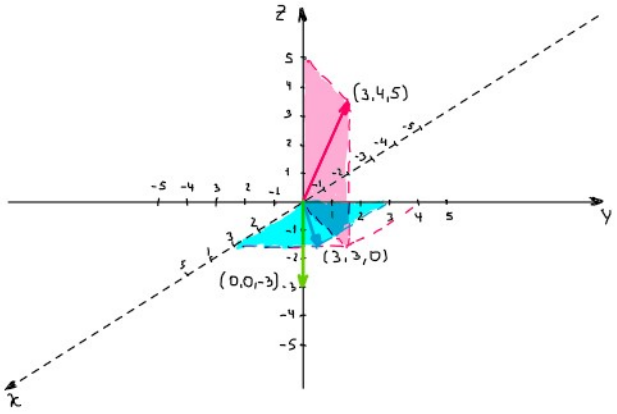




Exercícios 11.3: Esboce os seguintes vetores, com ponto inicial na origem

a) $v_1 = (3, -6)$
b) $v_2 = (-4, -8)$
c) $v_3 = (-4, 3)$
d) $v_4 = (5, -4)$
e) $v_5 = (3, 0)$
f) $v_6 = (0, -7)$
g) $v_7 = (3, 4, 5)$
h) $v_8 = (3, 3, 0)$
i) $v_9 = (0, 0, -3)$





Exercícios 11.4: Sejam $u = (-3, 1, 2)$, $v = (4, 0, -8)$ e $w = (6, -1, -4)$, encontre os componentes de:

a) $v - w$
b) $6u+2v$
c) $-v+u$
d) $5(v-4u)$
e) $-3(v-8w)$
f) $(2u-7w) - (8v+u)$

a) $v - w = (4,0,-8) - (6,-1,-4)$

$v - w = (-2, 1, -4)$

b) $6u + 2v = 6(-3,1,2) + 2(4,0,-8)$

$= (-18, 6, 12) + (8, 0, -16)$

$= (-10, 6, -4)$

c) $-v + u = -(4,0,-8) + (-3,1,2)$

$= (-4, 0, 8) + (-3, 1, 2)$

$= (-7, 1, 10)$

d) $5(v - 4u) =$

$= 5\left((4,0,-8) - 4(-3,1,2)\right)$

$= 5(4,0,-8) - 5(-12, 4, 8)$

$= (20, 0, -40) - (-60, 20, 40)$

$= (-80, -20, -80)$

e) $-3(v - 8w) = 3\left[(4,0,-8) - 8(6,-1,-4)\right]$

$= -3\left[(32, 0, -24) - (48, -8, -32)\right]$

$= -3(-44, 8, 40)$

$= (132, -24, 120)$

f) $(2u - 7w) - (8v - u)$

$= \left(2(-3,1,2) - 7(6,-1,-4)\right) - \left(8(4,0,-8) - (-3,1,2)\right)$

$= \left((-6,2,4) - (42,-7,-28)\right) - \left((32,0,-64) - (-3,1,2)\right)$

$= (-48, 9, 32) - (35, -1, -66)$

$= (-83, 10, -98)$