

HW 12.4 # 1, 5, 13, 21, 25, 27, 39, 41, 43, 45

due 9/20

✓ 12) -5

✓ 5.) -8

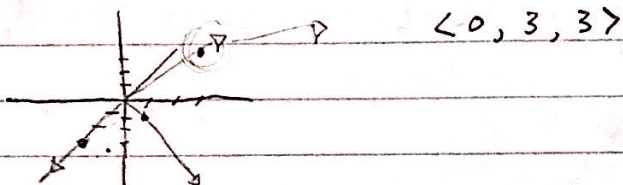
✓ 13.) $(i+j) \times k = \langle 1, 1, 0 \rangle \times \langle 0, 0, 1 \rangle = \langle 1, -1, 0 \rangle$

? 21.) $(u-2v) \times (u+2v)$

Answer: $\langle 4, 4, 0 \rangle$
 $u \times u + u \times 2v - 2v \times u - 2v \times 2v$ $u \times 2v = -2v \times u$
 $\therefore \langle 2, 2, 0 \rangle - \langle -2, -2, 0 \rangle = \langle 4, 4, 0 \rangle$

✓ 25) -u

✓ 27)

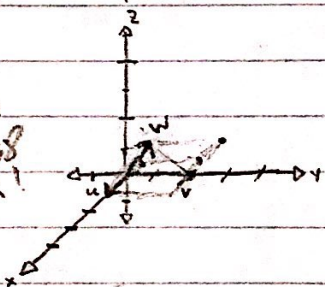


× 39)

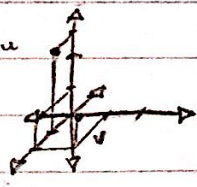
$v = |(u \times v) \cdot w| = |\langle 6, -5, -2 \rangle \cdot \langle 1, 1, 2 \rangle|$
 $= |\langle 6, -5, -4 \rangle| = \sqrt{77}$

Answer: $v = |(u \times v) \cdot w| = |\langle 0, 0, 2 \rangle \cdot \langle 1, 1, 2 \rangle|$
 $= |\langle 0, 0, 4 \rangle| = 4$

lol I used the numbers from #38 Be careful smh!



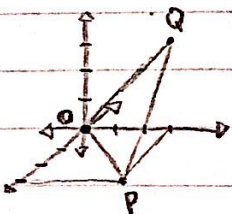
✓ 41)



$u = \langle 1, 0, 3 \rangle$
 $v = \langle 2, 1, 1 \rangle$

$|u \times v| = |\langle -3, 5, 1 \rangle| = \sqrt{35}$

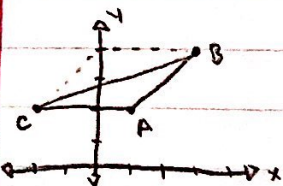
✓ 43)



$\vec{OP} = \langle 3, 3, 0 \rangle$
 $\vec{OQ} = \langle 0, 3, 3 \rangle$

$\frac{1}{2} |\vec{OP} \times \vec{OQ}| = \frac{1}{2} |\langle 9, -9, 9 \rangle| = \frac{1}{2} \sqrt{243} = \frac{9\sqrt{3}}{2}$

✓ 45)



$\vec{AB} = \langle 2, 2 \rangle$
 $\vec{AC} = \langle -3, 0 \rangle$

$\frac{1}{2} |\vec{AB} \times \vec{AC}| = \frac{1}{2} (0+6) = \frac{1}{2} (6) = 3$