

Topic: Sum of two vectors**Question:** Find the sum of the vectors.

$$u = \langle -3, 5 \rangle$$

$$v = \langle 6, 8 \rangle$$

Answer choices:

A $w = \langle 13, 3 \rangle$

B $w = \langle -3, -9 \rangle$

C $w = \langle -9, -3 \rangle$

D $w = \langle 3, 13 \rangle$



Solution: D

To sum the vectors $u = \langle -3, 5 \rangle$ and $v = \langle 6, 8 \rangle$, we simply add the x -coordinates together to get the new x -coordinate, and we do the same for the y -coordinates. We can call the new vector w .

$$w = \langle -3 + 6, 5 + 8 \rangle$$

$$w = \langle 3, 13 \rangle$$



Topic: Sum of two vectors**Question:** Find the sum of the vectors.

$$u = \langle 3, 0, -5 \rangle$$

$$v = \langle -1, -4, 6 \rangle$$

Answer choices:

A $w = \langle 2, -4, 1 \rangle$

B $w = \langle -11, 4, 4 \rangle$

C $w = \langle 1, -4, 2 \rangle$

D $w = \langle 4, 4, -11 \rangle$



Solution: A

To sum the vectors $u = \langle 3, 0, -5 \rangle$ and $v = \langle -1, -4, 6 \rangle$, we simply add the x -coordinates together to get the new x -coordinate, and we do the same for the y - and z -coordinates. We can call the new vector w .

$$w = \langle 3 + (-1), 0 + (-4), -5 + 6 \rangle$$

$$w = \langle 2, -4, 1 \rangle$$



Topic: Sum of two vectors**Question:** Find the sum of the vectors.

$$u = 6\mathbf{i} - 7\mathbf{j} - \mathbf{k}$$

$$v = -\mathbf{i} + 3\mathbf{j} - 2\mathbf{k}$$

Answer choices:

A $w = 7\mathbf{i} - 10\mathbf{j} + \mathbf{k}$

B $w = -7\mathbf{i} + 10\mathbf{j} - \mathbf{k}$

C $w = 5\mathbf{i} - 4\mathbf{j} - 3\mathbf{k}$

D $w = -5\mathbf{i} + 4\mathbf{j} + 3\mathbf{k}$



Solution: C

To sum the vectors we'll take the direction numbers and rewrite the vectors as

$$u = 6\mathbf{i} - 7\mathbf{j} - \mathbf{k}$$

$$u = \langle 6, -7, -1 \rangle$$

and

$$v = -\mathbf{i} + 3\mathbf{j} - 2\mathbf{k}$$

$$v = \langle -1, 3, -2 \rangle$$

Then we simply add the x -coordinates together to get the new x -coordinate, and we do the same for the y - and z -coordinates. We can call the new vector w . Since we want the sum in the same form as the given vectors, we'll insert the sums back into the vector equation as

$$w = [6 + (-1)]\mathbf{i} + (-7 + 3)\mathbf{j} + [-1 + (-2)]\mathbf{k}$$

$$w = 5\mathbf{i} - 4\mathbf{j} - 3\mathbf{k}$$

