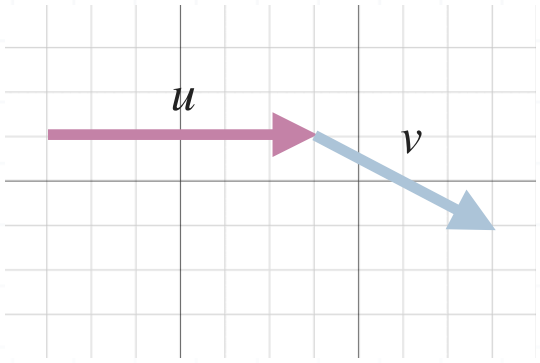
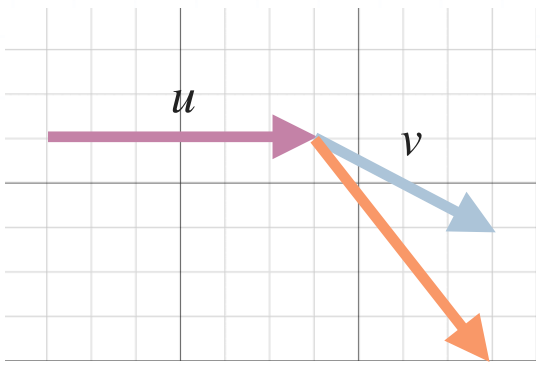
**Topic**: Copying vectors and using them to draw combinations

**Question**: Given the vectors $u$ and $v$ below, which red vector represents $u + v$?

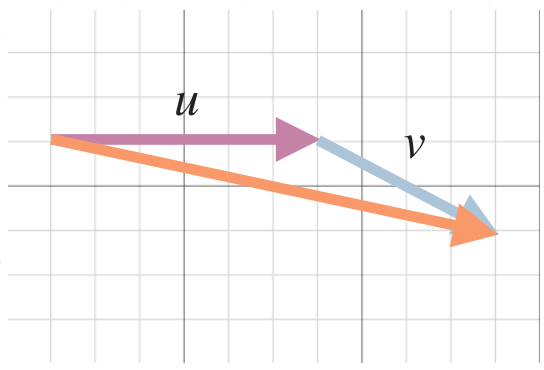



**Answer choices**:

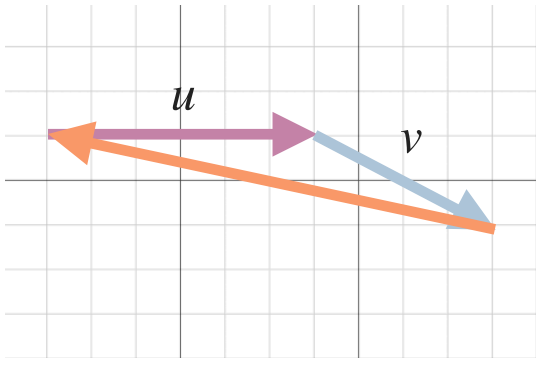
A



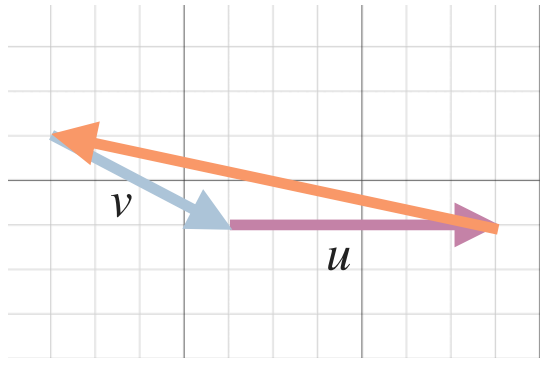

B




C

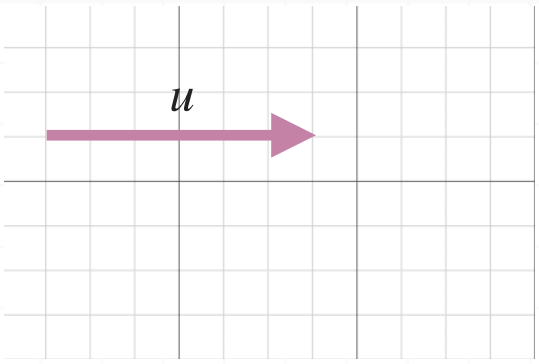



D

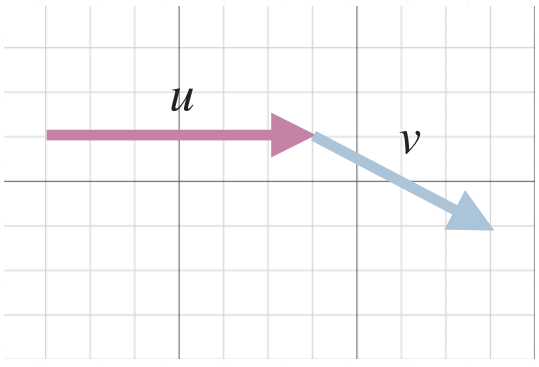


**Solution**: B

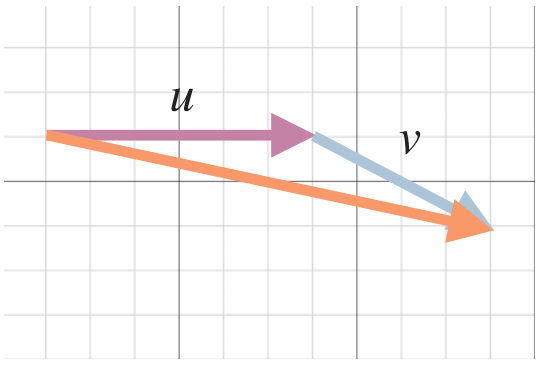
To solve for $u + v$, we start with the vector $u$.




Then we add the vector $v$ to it by connecting the initial point of $v$ to the terminal point of $u$.



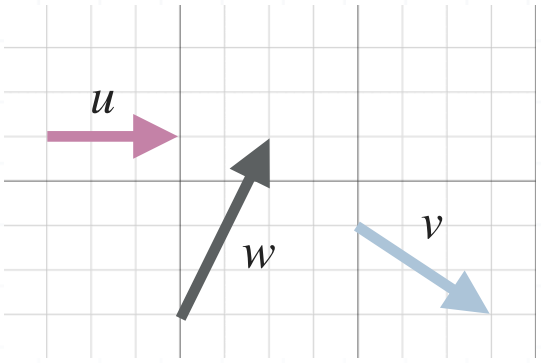

To find the resultant vector $u + v$, we connect the initial point of $u$ to the terminal point of $v$.




Remember that the direction of the resultant vector is from the first vector, towards the second vector.

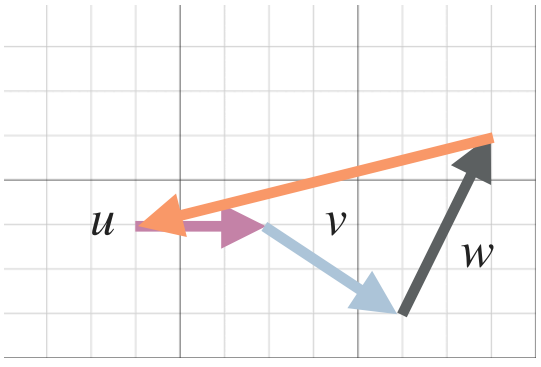
**Topic**: Copying vectors and using them to draw combinations

**Question**: Given the vectors $u$, $v$, and $w$ below, which red vector represents $u - v + w$?

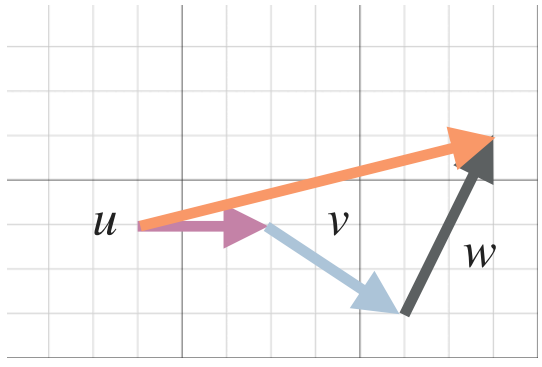



**Answer choices:**

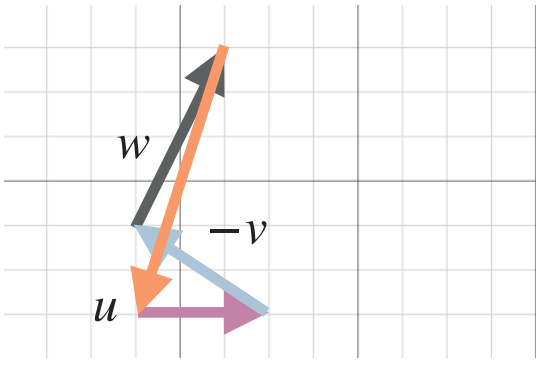
A



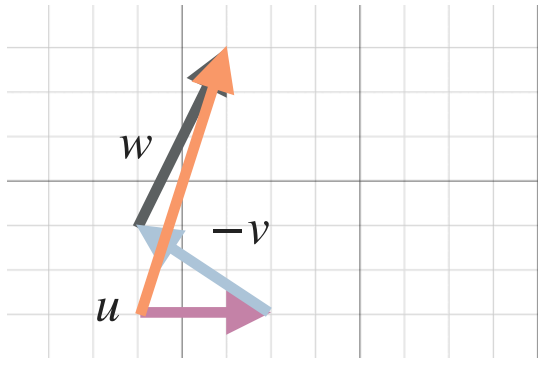

B




C

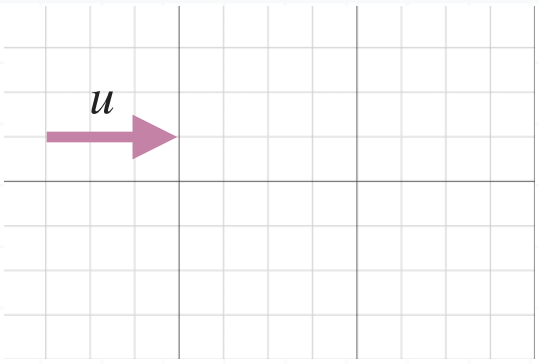



D

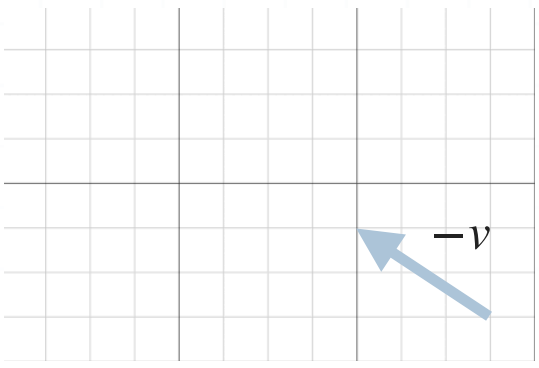


**Solution**: D

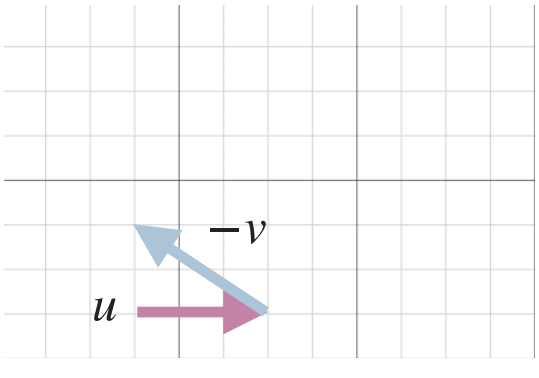
To solve for $u - v + w$, we start with the vector $u$.



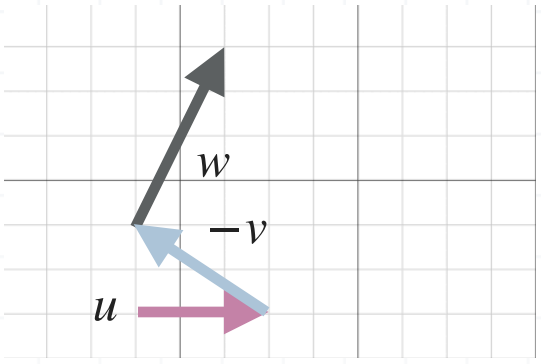

Then we add the vector $v$ to it by connecting the initial point of $v$ to the terminal point of $u$. However, the question is asking for vector $-v$ so we must first reverse the direction of vector $v$. This gives us



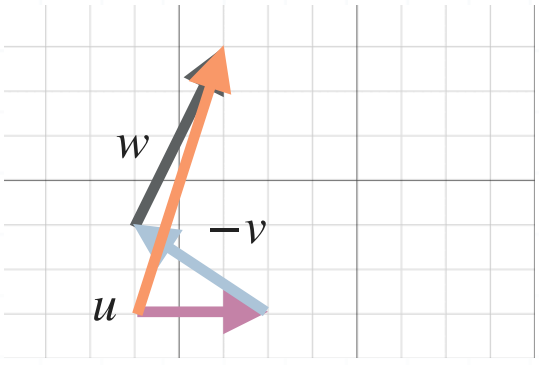

Connecting the initial point of vector $-v$ to the terminal point of vector $u$ looks like




Then we add the vector $w$ to this combination by connecting the initial point of vector $w$ to the terminal point of vector $-v$.



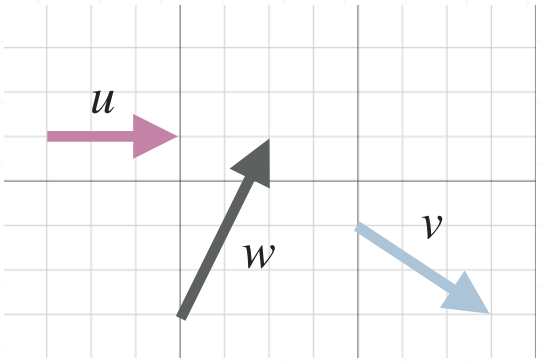

To find the resultant vector $u - v + w$, we connect the initial point of $u$ to the terminal point of $w$.




Remember that the direction of the resultant vector is from the first vector, towards the last vector.

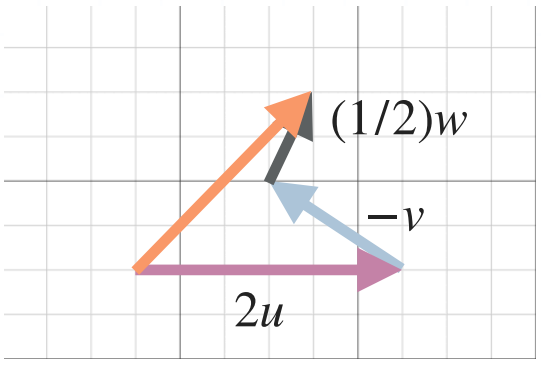
**Topic**: Copying vectors and using them to draw combinations

**Question**: Given the vectors $u$, $v$, and $w$ below, which red vector represents $2u + v - (1/2)w$?

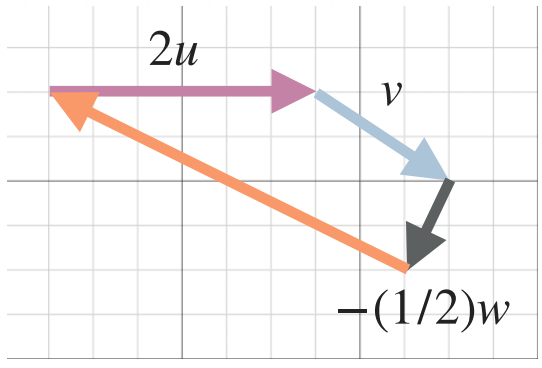



**Answer choices**:

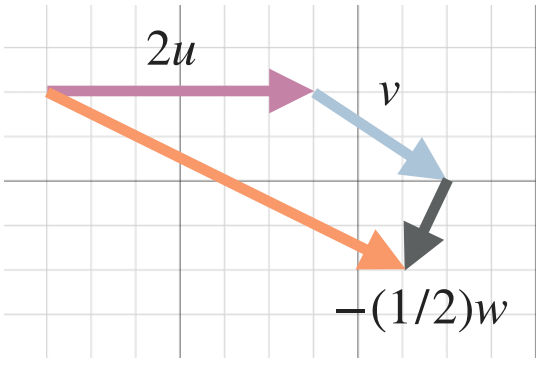
A



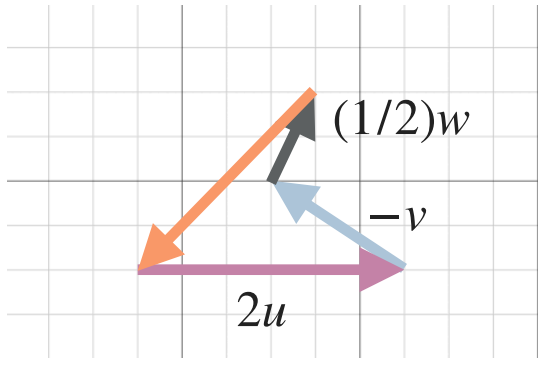

B




C

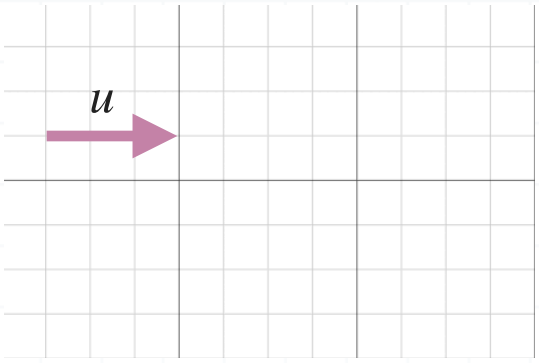



D

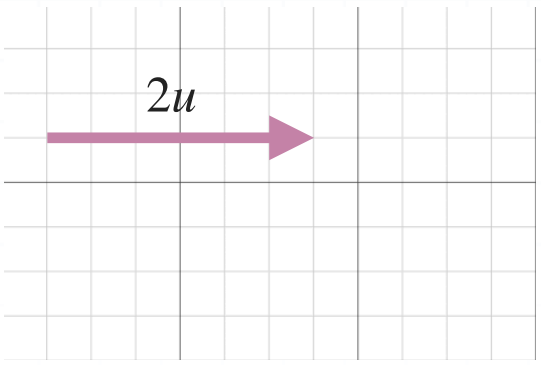


**Solution**: C

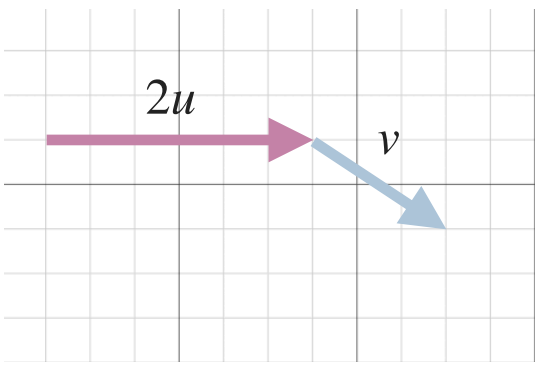
To solve for $2u + v - (1/2)w$, we start with the vector $u$.



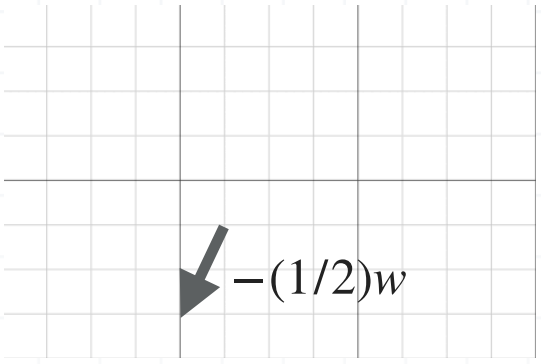

But we need $2u$ (double the magnitude of $u$).



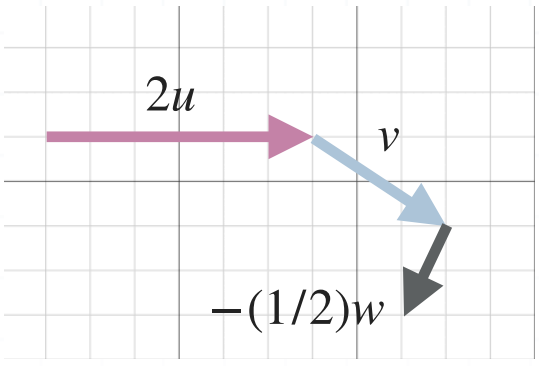

Then we add the vector $v$ to it by connecting the initial point of $v$ to the terminal point of $2u$.



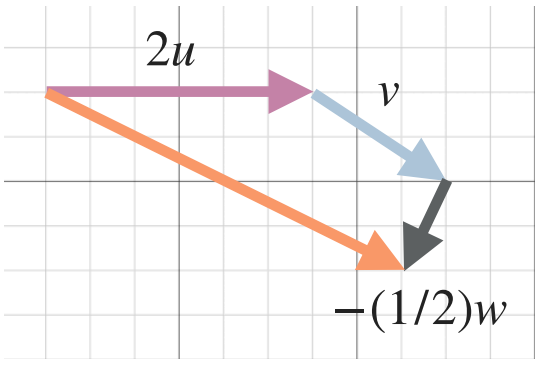

Then we add the vector $-(1/2)w$ to this combination. Remember vector $-(1/2)w$ will go in the opposite direction of vector $w$ because of the negative sign. And vector $-(1/2)w$ will be half the magnitude of vector $w$ because it's multiplied by $1/2$. So vector $-(1/2)w$ is




Now we can add vector $-(1/2)w$ to the rest of our combination by connecting the initial point of vector $-(1/2)w$ to the terminal point of vector $v$.




To find the resultant vector $2u + v - (1/2)w$, we connect the initial point of $2u$ to the terminal point of $w$.




Remember that the direction of the resultant vector is from the first vector, towards the last vector.