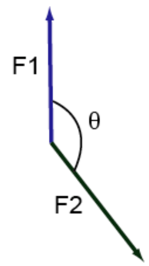
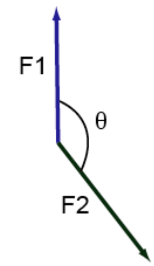


These two forces can add up to zero under the following conditions:

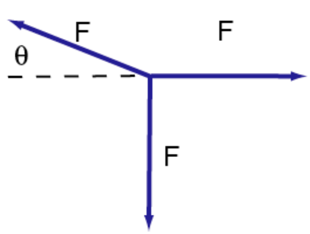
1) Never, it's impossible.
2) Only for the right values of the magnitudes of F1 and F2.
3) Only for the right value of the angle θ.
4) Only for the right values of the magnitudes and the angle.
5) Need more information to answer.



These two forces can add up to zero under the following conditions:

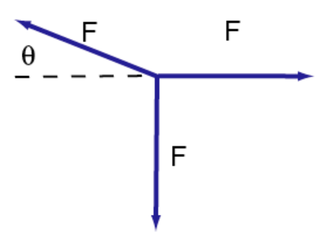
The two vectors can add to zero only if the magnitudes of F1 and F2 are identical and the angle is 180^{o} so that the two vectors are exactly back-to-back.

Correct answer is (4).



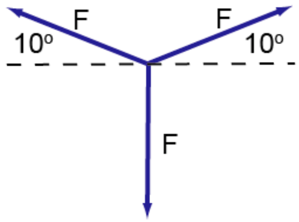
These three forces with exactly identical magnitudes can't add up to zero because:

1) I think that the total Y component cannot be zero.
2) I think that the total X component cannot be zero.
3) I think that both the total Y and the total X components cannot be zero.
4) I have no idea how to do this without knowing the value of θ.
5) Need more information to answer.



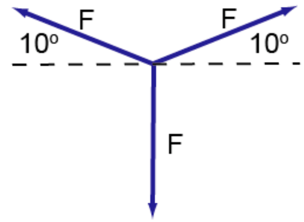
These three forces with exactly identical magnitudes can't add up to zero because:

Both the sine and cosine of all angles are always less than or equal to 1. Thus, if the angle is not zero or 90^{o}, both the X and Y components can never cancel to give zero. So, the answer is (3).



These three forces with exactly identical magnitudes can't add up to zero because:

1) I think that the total Y component cannot be zero.
2) I think that the total X component cannot be zero.
3) I think that both the total Y and the total X components cannot be zero.
4) I have no idea how to do this without a calculator.
5) Need more information to answer.



These three forces with exactly identical magnitudes can't add up to zero because:

The sine of 10^o in much less than 0.5 (it will help you to remember some special cases like $\sin(30^o)=0.5$) so the Y component cannot be zero. The X component must be zero by symmetry. So, the answer is (1).