

Quiz 3

Sept. 25, 2003

5) Acting on an object are the *balanced* force vectors: **A**, **B**, and **C**.

If **A** = -5 N, **B** = +2 N, what is the force vector, **C**?

- a) +7 N b) +5 N c) -3 N d) -7 N e) +3 N

$$\begin{aligned}\mathbf{A} + \mathbf{B} + \mathbf{C} &= \mathbf{0} \quad (\text{zero because they ARE balanced forces}) \\ (-5\text{N}) + (+2\text{N}) + \mathbf{C} &= 0 \\ \mathbf{C} &= +3\text{N}\end{aligned}$$

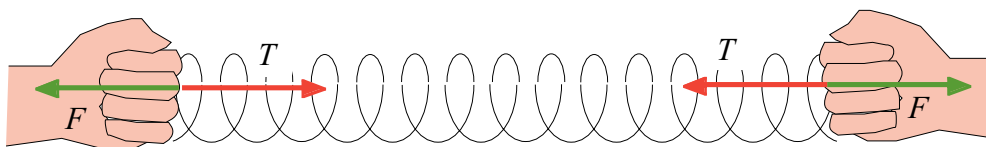
6) Are following statements true or false?

- I. An action - reaction pair of forces can *never* balance. (true: 2 vs. 1 object)
II. If I pull on a rope with a force, F , the rope pulls *on me* with a force of the same magnitude. (true: Newton's 3rd law of force)

- a) both I and II are true
b) only II is true
c) only I is true
d) both I and II are false
e) none of the above

7) If balanced forces act on a mass, which statement below is true?

- a) The mass cannot be moving. (moving with constant speed & direction is allowed by Newton's 1st law of force)
b) Only two forces can act on the mass.
c) The motion of the mass will be changing.
d) The mass cannot *begin* to move. (Newton's 1st law of force)
e) No elastic forces are generated by the mass.



8) In the picture above, 2 hands apply forces to stretch an ideal spring, and the spring applies forces to the hands. How many action – reaction pairs of forces can be identified in the picture?

- a) 1 b) 2 c) 3 d) 4 e) 5

(at hand – spring contact points, and tension forces acting on the hands).