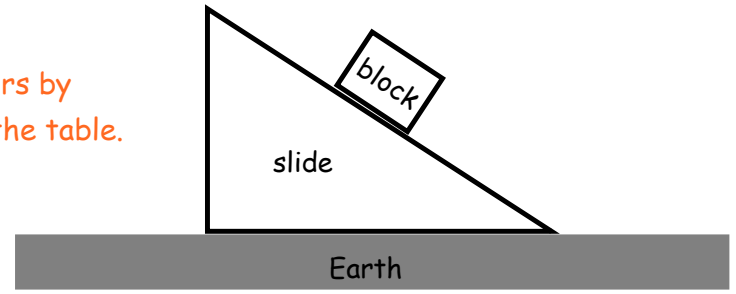
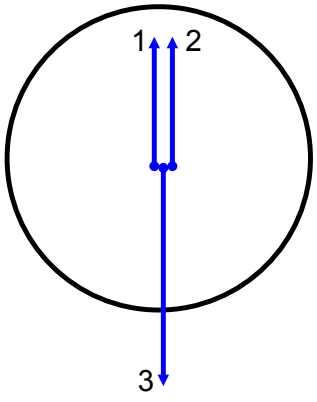
A block (mass M) slides freely down the incline of a slide (same mass M) that sits on a horizontal surface (Earth). All surfaces are frictionless, including the one between the slide and the Earth. The correct FBDs for each body are shown.

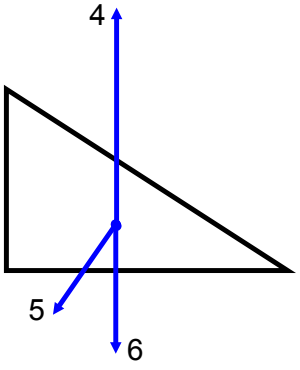
Identify all 3rd Law pairs by listing pair numbers in the table.

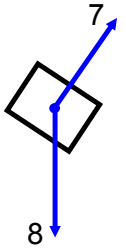


3rd Law force pairs

1	6
2	8
3	4
5	7

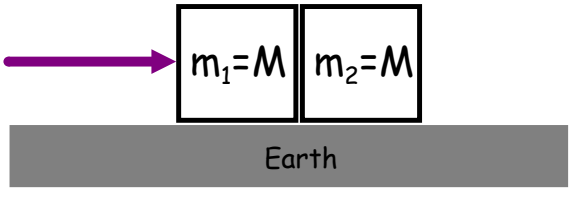






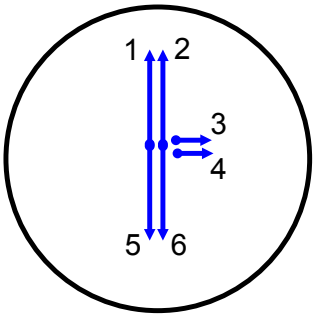
Two blocks with the same mass sit on a horizontal surface (Earth) as shown. An external force pushes one block so that the two blocks slide along the surface with the same acceleration. There is friction between all surfaces. The correct FBDs for each body are shown.

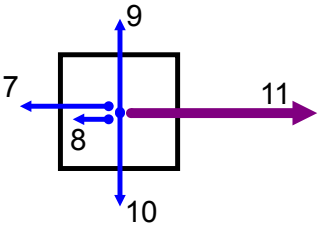
Identify all 3rd Law pairs by listing pair numbers in the table.

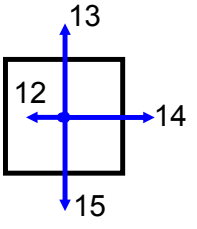


3rd Law force pairs

1	10
2	15
3	8
4	12
5	9
6	13
7	14







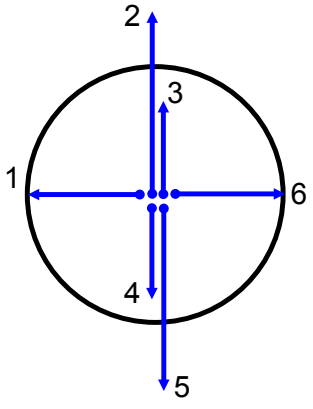
An athlete does a pushup exercise with a box as shown. Assume that the mass of the athlete is twice the mass of the box and that there is sufficient friction to keep things from slipping. The correct FBDs for each object are shown.

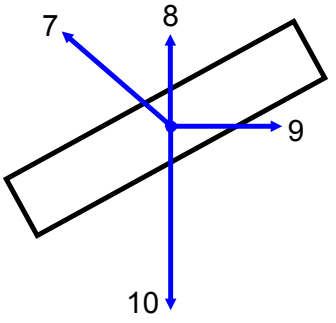
Identify the **incorrectly** identified 3rd Law pairs listed in the table by marking them with an "X".

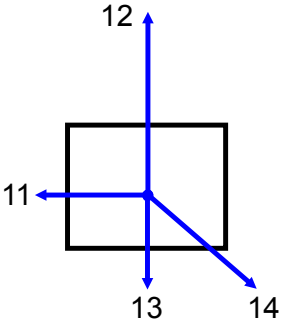
In the space below the FBDs briefly explain how you know each mistaken pair is wrong.

3rd Law force pairs

1	9
~~2~~	~~5~~
~~3~~	~~8~~
~~4~~	~~13~~
6	11
7	14
~~10~~	~~12~~







- Know 2 and 5 are not a 3rd Law pair because they act on the same object
- Know 3 and 8 are not a 3rd Law pair because they are not opposite direction
- Know 4 and 13 are not a 3rd Law pair because they are not opposite direction
- know 10 and 12 are not a 3rd Law pair because 10 is due to gravity and 12 is due to the normal and both are the result of an interaction with the Earth. Therefore, the 3rd Law pairs for each must be on the Earth.