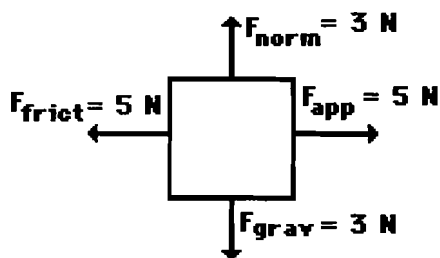


1. Free-body diagrams for four situations are shown below. For each situation, write an F_{net} equation and determine the net force acting upon the object.

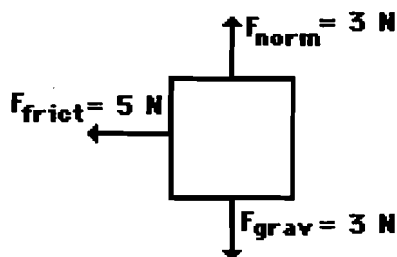
Situation A



$$F_{x\ net} = 5 - 5 = 0$$

$$F_{y\ net} = 3 - 3 = 0$$

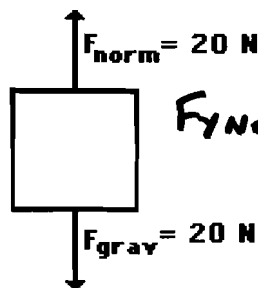
Situation B



$$F_{x\ net} = 0 - 5 = \underline{-5\ N \leftarrow}$$

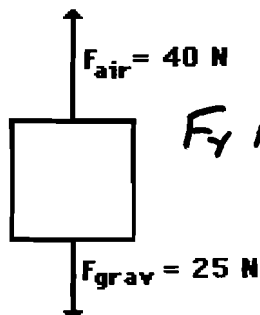
$$F_{y\ net} = 3 - 3 = 0$$

Situation C



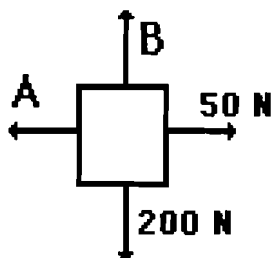
$$F_{y\ net} = 0$$

Situation D



$$F_{y\ net} = 40 - 25 = \underline{15\ N \uparrow}$$

2. Free-body diagrams for four situations are shown below. In each case, the net force is known. However, the magnitudes of some of the individual forces are not known. Analyze each situation write an f_{net} equation and determine the magnitude of the unknown forces.



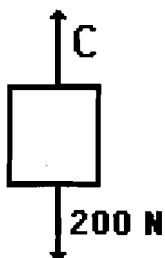
$$F_{net} = 0\ N$$

$$F_{x\ net} = 0 = 50 - A$$

$$\boxed{A = 50\ N}$$

$$F_{y\ net} = 0 = B - 200$$

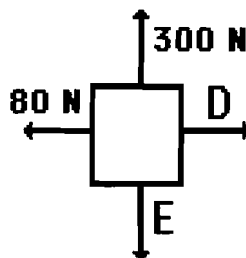
$$\boxed{B = 200\ N}$$



$$F_{net} = 900\ N, \text{ up}$$

$$900 = C - 200$$

$$\boxed{C = 1100\ N}$$



$$F_{net} = 60\ N, \text{ left}$$

$$F_{y\ net} = 0$$

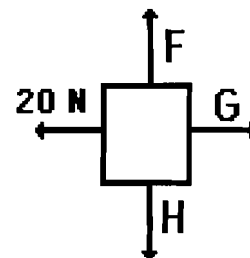
$$0 = 300 - E$$

$$E = 300\ N$$

$$F_{x\ net} = -60\ N$$

$$-60 = -80 + D$$

$$\boxed{D = 20\ N}$$



$$F_{net} = 30\ N, \text{ right}$$

$$F_{y\ net} = 0 \Rightarrow F = H$$

$$F_{x\ net} = 30$$

$$30 = G - 20$$

$$\boxed{G = 50\ N}$$