

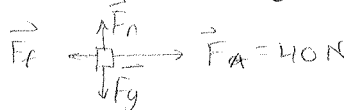
INTRODUCTION TO FORCES
WORKSHEET

1. Draw a free body diagram for the following

a. a boy sits on a toboggan – not moving



b. a boy sits on a toboggan and his dad is pulling it forward with a force of 40 N



c. a boy sits on a toboggan and his dad is pulling it forward with a force of 40 N while the boy is dragging his hand in the snow giving the toboggan an opposing force of 5 N.



2. Determine the net force and state its value.

a.

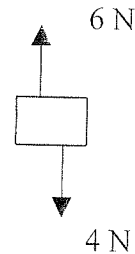


$\vec{F}_{NET} = 2 \text{ N [E]}$

W

N

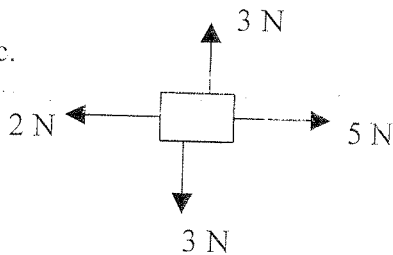
b.



$\vec{F}_{NET} = 2 \text{ N [N]}$

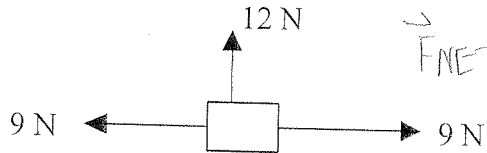
E

c.



$\vec{F}_{NET} = 3 \text{ N [E]}$

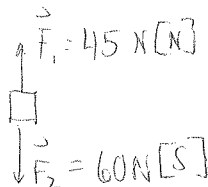
d.



$\vec{F}_{NET} = 12 \text{ N [N]}$

S

3. Two children are playing on the beach pulling on an inner tube. One exerts a force of 45 N [N]. The other exerts a force of 60 N [S]. What is the net force acting on the tube?



$\vec{F}_{NET} = 15 \text{ N [S]}$