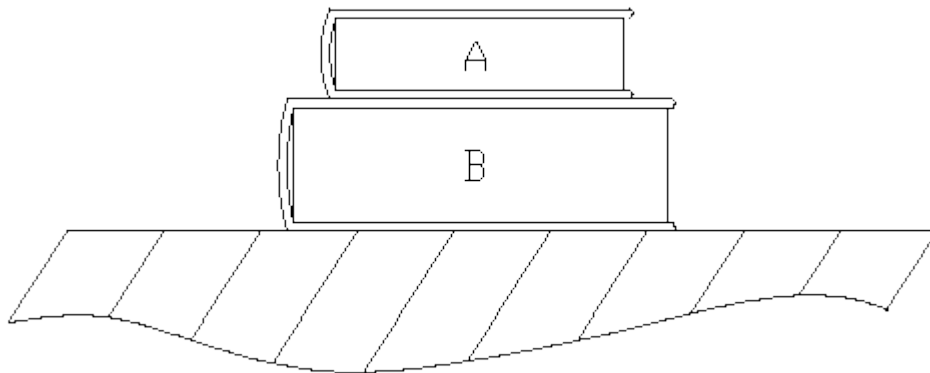


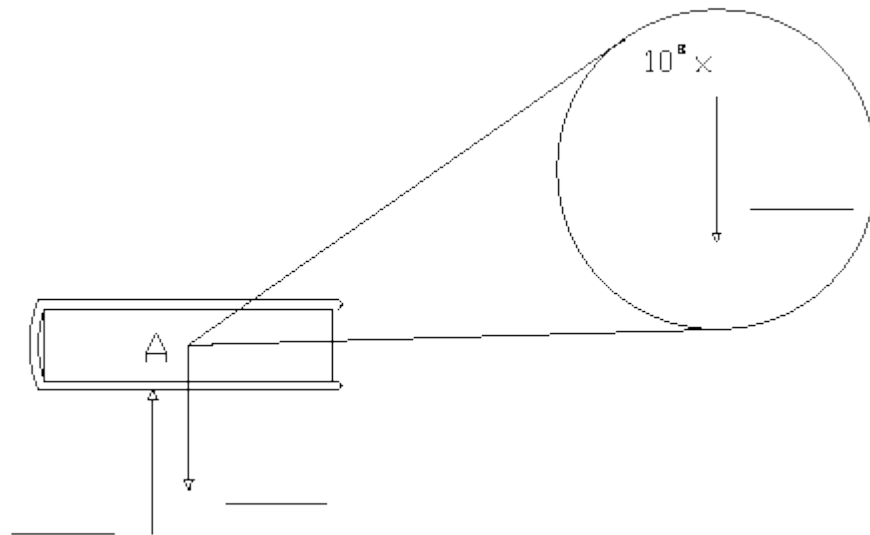
Newton's First and Third Laws Prelab Assignment

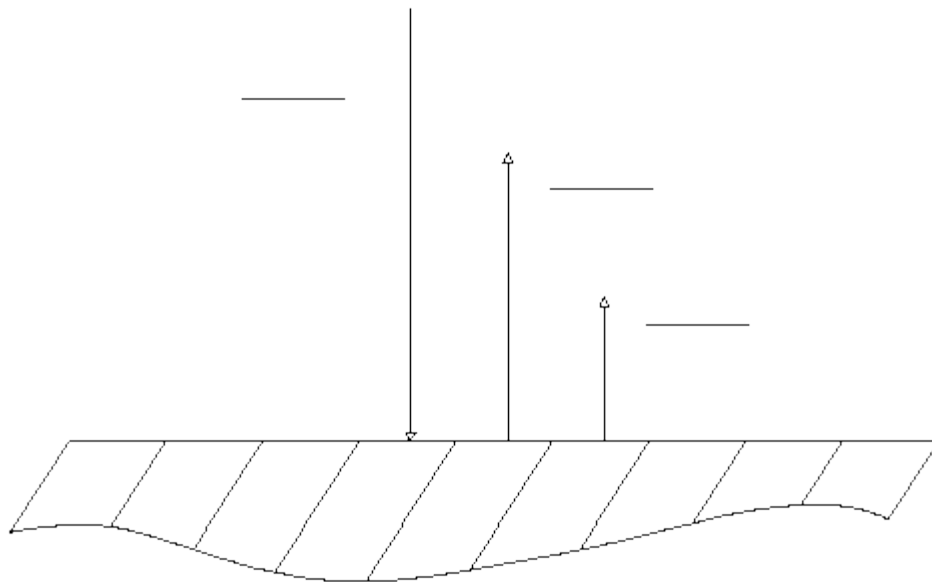
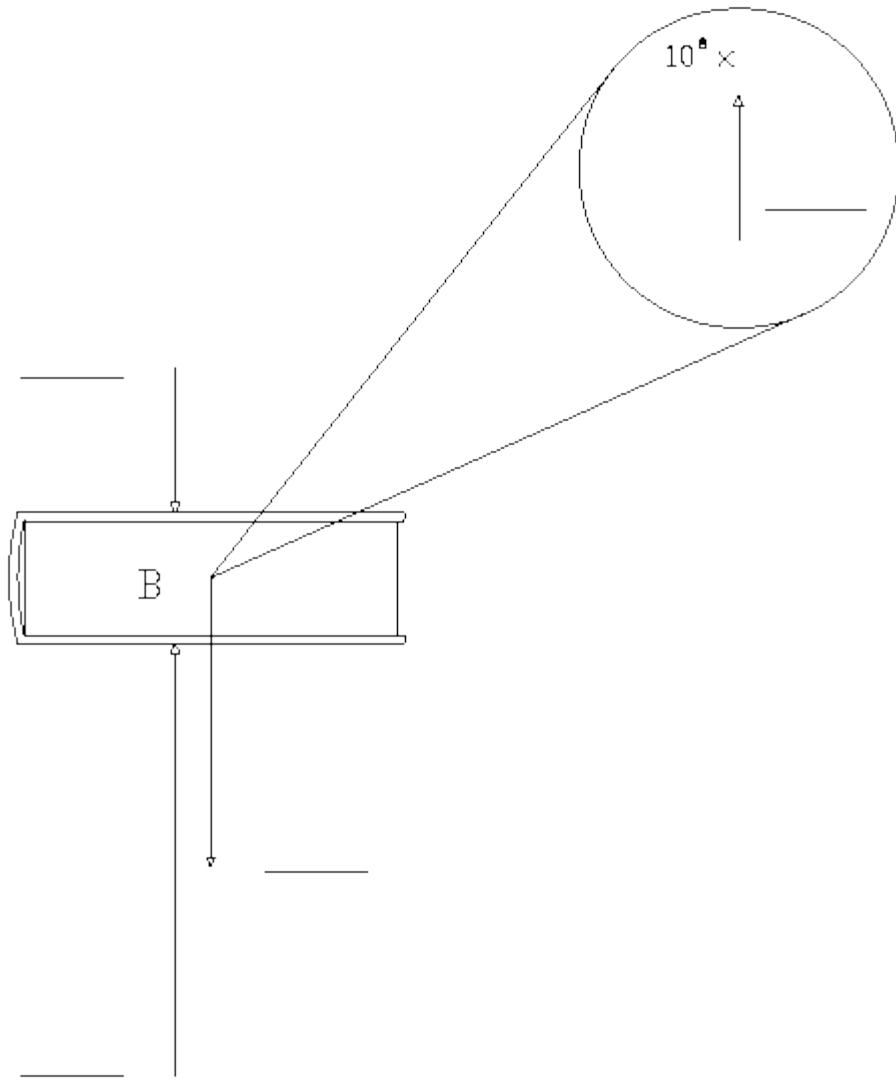
Name: _____ Lab Section: _____ 4-digit Coder: _____

Consider two books resting on the Earth.



- 1) Use the naming convention \mathbf{F}_{12} (where \mathbf{F}_{12} is the force of type F on 1 caused by 2) to label the following free-body diagrams. For example \mathbf{G}_{AE} is the gravitational force on A due to the Earth and \mathbf{N}_{BA} is the normal force on book B due to book A. (Hint: there are 10 forces in total $\{\mathbf{G}_{AE}, \mathbf{G}_{AB}, \mathbf{G}_{BE}, \mathbf{G}_{BA}, \mathbf{G}_{EA}, \mathbf{G}_{EB}, \mathbf{N}_{AB}, \mathbf{N}_{BA}, \mathbf{N}_{BE}, \mathbf{N}_{EB}\}$, 2 of which are negligibly weak.)





2) Identify all 5 action-reaction pairs.

_____ and _____,
_____ and _____,
_____ and _____,
_____ and _____,
_____ and _____.

3) Find the magnitudes of all the non-negligible forces listed in terms of m_A , m_B , and g .

$G_{AE} =$ _____,	$G_{AB} =$ _____,
$G_{BE} =$ _____,	$G_{BA} =$ _____,
$G_{EA} =$ _____,	$G_{EB} =$ _____,
$N_{AB} =$ _____,	$N_{BA} =$ _____,
$N_{BE} =$ _____,	$N_{EB} =$ _____,

4) Find the net force on
i) Book A

ii) Book B

iii) The Earth