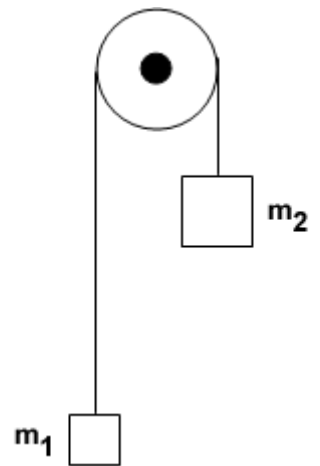




Name: \_\_\_\_\_

- 3) Below is a diagram of an Atwood's Machine where  $m_2$  and  $m_1$  are tied by a massless rope hanging from a frictionless pulley. If  $m_2 = 4.2\text{kg}$  and  $m_1 = 2.5\text{kg}$ , calculate the acceleration of  $m_1$ . (4 marks)



- 4) Jamie (78kg) is riding on an elevator while standing on a scale. Calculate the reading on the scale given each situation: (8 marks)
- When the elevator isn't moving
  - When the elevator is moving upwards at constant velocity
  - When the elevator is accelerating upwards at  $1.2\text{m/s}^2$
  - When the elevator is accelerating downwards at  $0.85\text{m/s}^2$
  - When the cable of the elevator breaks and James + elevator are in free fall (oh no!)

*Make sure to show all your work.*

