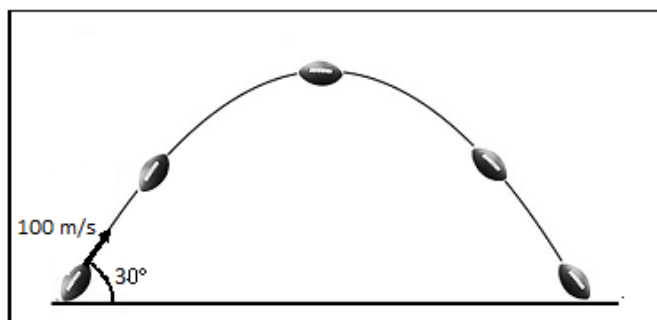


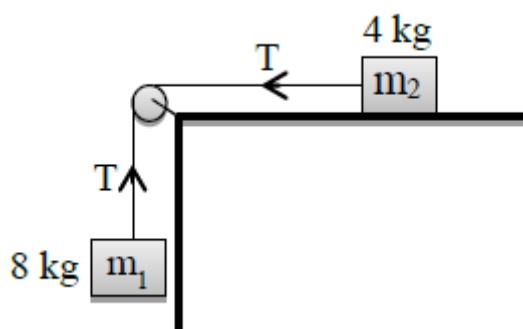
## Year 12 Physics 2021 Worksheet 2- Mechanics

Write the answers in your Exercise Book.

1. A projectile is launched with a velocity of  $100 \text{ ms}^{-1}$  at an angle of  $30^\circ$  to the horizontal.



- i) Find the initial **horizontal** and **vertical** speeds of the projectile. **(2 marks)**
  - ii) Calculate the **time** of flight. **(2 marks)**
  - iii) Calculate the **range** of the projectile. **(2 marks)**
  - iv) Calculate the **maximum height** reached. **(2 marks)**
  - v) What is the **speed** of the projectile at the maximum height? **(1 mark)**
  - vi) State the magnitude of the **acceleration** at the maximum height. **(1 mark)**
2. Two masses connected by a light inelastic string are placed on a frictionless surface as shown in the diagram. The system is then released.



Calculate

- i) the **acceleration** of the masses. **(2 marks)**
- ii) the **tension** in the string. **(2 marks)**