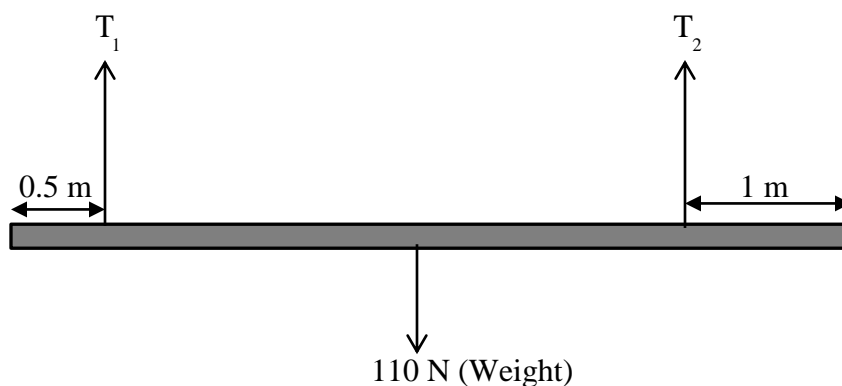


## Worksheet 8

### Year 12 Physics

Write the answers in your Exercise Book.

- An aircraft flies with a constant speed of 130 m/s relative to the wind. The pilot wants to fly directly west, but there is a wind blowing from the north with a speed of 50 m/s.
  - Draw a labelled vector diagram showing the direction in which the pilot must point the aircraft to actually fly west in the wind. **(1 mark)**
  - Calculate the angle at which the aircraft must fly to actually travel west. **(1 mark)**
  - Calculate the velocity of the aircraft relative to the ground. **(1 mark)**
- The diagram below shows a uniform plank of length 7 m and weight 110 N suspended horizontally by two vertical wires attached at 0.5 m and 1 m respectively from the ends.



- State the two conditions of equilibrium. **(1 mark)**
- Find the tension in the wire,  $T_2$ , if the beam is in a state of equilibrium. **(2 marks)**