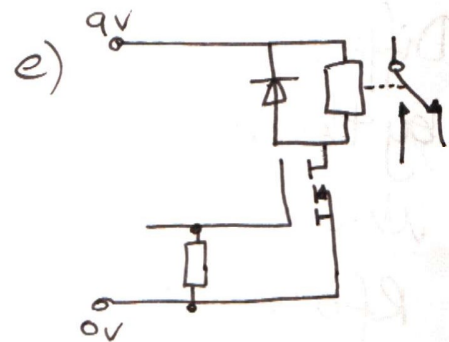
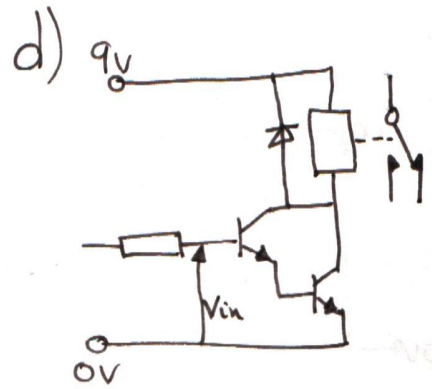
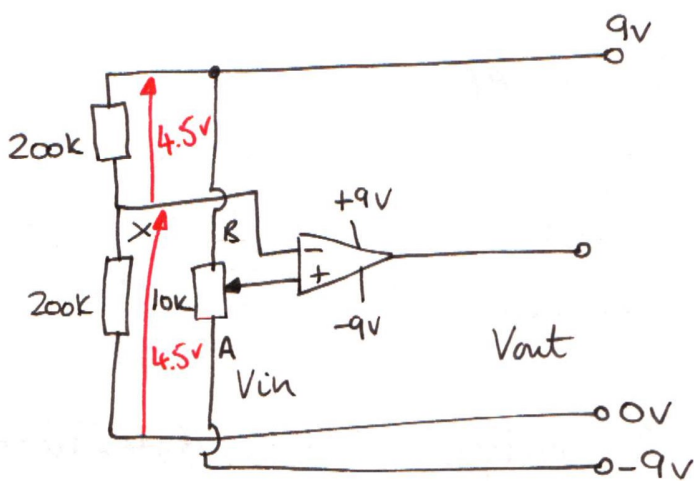


## Homework 2.6.

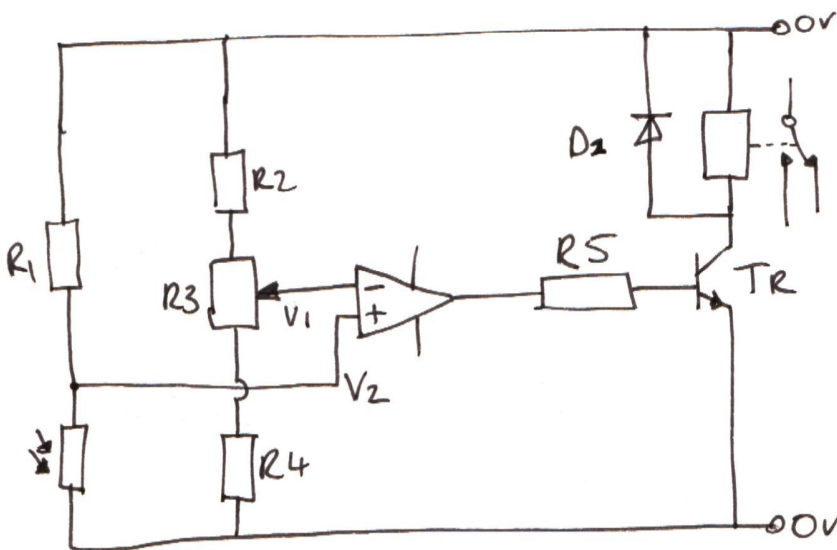


a) Comparator

b) 4.5V

f) Advantages of a MOSFET are higher input impedance and larger power gain.

## Homework 2.7.



- a) Comparator.
- b)  $V_2$  needs to be greater than  $V_1$  to give a negative output.
- c) (i) When the light level decreases, the resistance level of the LDR increases (LDR).
- (ii)  $V_2$  is greater than  $V_1$ .
- (iii) The output goes positive.
- (iv) The transistor switches on and saturates.
- (v) The relay energises and switches on.
- d) The diode is there to protect the transistor from back emf when the relay de-energises.
- e) Swap the position of the LDR and  $R_1$ .