MAXWELL-BOLTZMANN CURVES

For each of the following

a) Sketch the new shape of the distribution curve
b) Indicate the new most probable energy (E_{mp}) if it changes
c) Indicate the new activation energy (E_a) if it changes
d) Indicate whether the number of particles with energy ≥ activation energy increases, decreases or stays the same

1) Increase the temperature

Number of particles with E ≥ E_a

more   same   less

Number of molecules

E_{mp} E_a Energy

2) Remove half the molecules (at constant temperature)

Number of particles with E ≥ E_a

more   same   less

Number of molecules

E_{mp} E_a Energy

3) Add a catalyst (at constant temperature)

Number of particles with E ≥ E_a

more   same   less

Number of molecules

E_{mp} E_a Energy

4) Reduce the volume of the container (at constant temp.)

Number of particles with E ≥ E_a

more   same   less

Number of molecules

E_{mp} E_a Energy

5) Reduce the temperature

Number of particles with E ≥ E_a

more   same   less

Number of molecules

E_{mp} E_a Energy

6) Add an inert gas (at constant temperature)

Number of particles with E ≥ E_a

more   same   less

Number of molecules

E_{mp} E_a Energy