The graph is a distribution of speeds, where

$N_v\ (v = 2\ m/s) = 2$

$N_v\ (v = 4\ m/s) = 4$

$N_v\ (v = 6\ m/s) = 3$

$N_v\ (v = 8\ m/s) = 1$

a.) The most probable speed, v_{mp}, is the speed where N_v is maximum.

$\therefore\ v_{mp} = 4\ m/s$

b.) The average speed is:

$$v_{avg} = \frac{1}{N}\int_0^\infty v N_v\, dv \qquad N = \text{total number of molecules}$$

$= 2+4+3+1$

$= 10$

So

$$v_{avg} = \frac{1}{10}\left\{(2\ m/s)2 + (4\ m/s)4 + (6\ m/s)(3) + (8\ m/s)(1)\right\}$$

$$v_{avg} = 4.6\ m/s$$

c.) The root-mean-square speed is:

$$v_{rms} = \left[\frac{1}{N}\int_0^\infty v^2 N_v\, dv\right]^{1/2}$$

$$= \left[\frac{(2\ m/s)^2(2) + (4\ m/s)^2(4) + (6\ m/s)^2(3) + (8\ m/s)^2(1)}{10}\right]^{1/2}$$

So, $v_{rms} = 4.94\ m/s$