2.   a.)The speed is given in miles per hour, and we are to convert this to kilometers per hour. We need the conversion factor for miles to kilometers. This conversion factor is given in the inside front cover of the text as

1 kilometer is equal to 0.6214 miles.

$$s \;=\; (55 \text{ miles / hr}) \; (1 \text{ km / } 0.6214 \text{ miles})$$

$$s \;=\; 88.51 \text{ km/hr}$$

b) There are 60 minutes in an hour and 60 seconds in a minute, which means there are 3600 seconds in one hour.

$$s \;=\; (88.51 \text{ km/hr}) \; (1 \text{ hr/ } 3600 \text{ s})$$

$$s \;=\; 0.0246 \text{ km/s}$$

c) There are 1000 meters in one kilometer.

$$s \;=\; (0.0246 \text{ km/s}) \; (1000 \text{ m/km})$$

$$s \;=\; 24.6 \text{ m/s}$$