Below are six balls of different mass thrown horizontally at different speeds from the same height above the ground. Assume the effects of air resistance are negligible.

0.6 kg

2.0 kg

A B

0.6 kg

2.0 kg

0.5 kg

2.0 kg

60 m/s

40 m/s

C D

20 m/s

40 m/s

E F

10 m/s

10 m/s

a. Rank the balls on the basis of the elapsed time before they hit the ground.

Largest 1. \_\_\_\_\_\_ 2. \_\_\_\_\_\_ 3. \_\_\_\_\_\_ 4. \_\_\_\_\_\_ 5. \_\_\_\_\_\_ 6. \_\_\_\_\_\_ Smallest

\_\_\_\_\_ The ranking can not be determined based on the provided information.

Explain the reason for your ranking:

b. Rank these baseballs on the basis of the horizontal distance traveled before they hit the ground.

Largest 1. \_\_\_\_\_\_ 2. \_\_\_\_\_\_ 3. \_\_\_\_\_\_ 4. \_\_\_\_\_\_ 5. \_\_\_\_\_\_ 6. \_\_\_\_\_\_ Smallest

\_\_\_\_\_ The ranking can not be determined based on the provided information.

Explain the reason for your ranking: