

1. 45.8 m/s

2. (a) 63.4 m/s
(b) 56.8 m/s
(c) 63.7 m/s
(d) 50.4 m/s
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3. 54.8 m/s

Due to air resistance, some of the gravitational potential energy will be transferred as thermal energy to the surroundings. This means, the increase in kinetic energy will be less than that we calculated in the previous part. Therefore, the final kinetic energy will be lower, hence the final speed will be lower as well.

4. (a) 12 kg
(b) 89.4 m/s

Assumption made: There is no air resistance.

5. (a) 3.75 m
(b) 14.1 m/s
(c) 41.8 m
(d) 30 m/s
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6. (a) 5 m
(b) 11.25 m
(c) 20 m
(d) 7.2 m
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7. 3.2 m

Assumption made: There is no air resistance.
