Equations of Motion Questions

These were questions from tests and assignments. Use them now just for practice. Answers are provided.

(2)   1. A car accelerates from 10 m/s to 15 m/s in 3 seconds, what is its acceleration? [1.67 m/s^2]

(2)   2. How far did the car travel during this three second period? [37.5 m]

(2)   3. A bird flies at 30 km/hr for 1 minute. How far has it travelled? [500 m]

(5)   4. A wingnut falls off an aeroplane that is 10,000 m above the ground. How long does it take the wingnut to hit the ground? What two assumptions do you make in order to be able to do this problem? [45 s]

(2)   5. A motorbike accelerates at 4.5 m/s^2 . If it starts from rest, how fast is it going after 12 seconds? Now convert the answer to km/hr. [54 m/s, 194 km/hr]

(4)   6. A car travelling at 50 km/hr stops in 4 seconds. How long (distance) did it take to stop? [27.8 m]

(3)   7. A train travelling at 40 km/hr takes 500 m to stop. How long (time) did it take the train to stop? [90 s]

(5)   8. A stone is dropped from a 13 m high bridge.
        a) How long does it take to hit the water?   [1.6 s]
        b) how far does it fall? [13 m]
        c) how fast is it going when it hits the water? [-16 m/s]

(3)   9. A model rocket takes 3 seconds to reach its maximum height. How high did it go? [44 m]

(2)   10. A camera slips over the side of a canoe and sinks at a constant rate in the water. If it travels 10 m in 4 seconds, what is its speed? What is its acceleration? [2.4 m/s] [a = 0]

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