

Linear Motion Exercise

1) What is the average speed of a cheetah that runs 65 m in 3.0 seconds?

2) A bicycle travels 15 km in 30 minutes. What is its average speed?

3) A jet on an aircraft carrier can be launched from 0 to 50 m/s in 2.0 seconds. What is the acceleration of the jet?

4) A skateboarder starting from rest accelerates down a ramp at 4.0 m/s^2 for 4.0 s. What is the final speed of the skateboarder?

5) An apple falls from a tree and 0.5 second later hits the ground. How fast is the apple falling when it hits the ground?

6) What speed must you toss a ball straight up so that it takes 4.0 s to return to you?

7) You toss a ball at 30.0 m/s straight upward. How much time will the ball take to reach the top of its path?

8) What is the hang time of a person who can jump a vertical distance of 0.80 m?

9) What vertical distance can a person with a 0.8-s hang time jump?

10) How much time does a car with an acceleration of 4.0 m/s^2 take to go from 10 m/s to 30 m/s?

11) Starting from rest, a car undergoes a constant acceleration of 6.0 m/s^2 . How far will the car travel in the first second?

12) A crate falls from an airplane flying horizontally at an altitude of 2,000 m. Neglecting air drag, how long will the crate take to strike the ground?

13) If a projectile fired beneath the water, straight up, breaks through the surface at a speed of 16 m/s, to what height above the water will it ascend?

14) A stone is dropped from a cliff. After it has fallen 40 m, what is the stone's velocity?

15) What is the average acceleration of a car that goes from rest to 59 km/h in 9.0 seconds?

1)

Answer:

22 m/s

2)

Answer:

30 km/hr

3)

Answer:

25 m/s²

4)

Answer:

16 m/s

5)

Answer:

5 m/s

6)

Answer:

20 m/s

7)

Answer:

3.00 s

8)

Answer:

0.80 s

9)

Answer:

0.8 m

10)

Answer:

5.0 s

11)

Answer:

3.0 m

12)

Answer:

20.0 s

13)

Answer:

12.8 m

14)

Answer:

28 m/s

15)

Answer:

6.6 km/h\97s