Kinematic Equations Worksheet 1 Fill in variables, show work with units, and answer with sig figs and units

1. From rest, a lemur accelerates to 4.20 m/s² for 10.0 seconds before catching a centipede. How far did he run?

a=

vi=

vf=

d=

t=

2. A plane starts from rest and accelerates uniformly over a time of 20.0 s for a distance of 300. m. Determine the plane's acceleration.

a=

vi=

vf=

d=

t=

3. A cyclist is riding along at a constant velocity of 15.0 m/s. He then accelerates at a uniform rate of 0.500 m/s² over a distance of 64.0 m. a. What is the final velocity? b. How long did he accelerate for?

a=

vi=

vf=

d=

t=

4. A bullet leaves a rifle with a velocity of 452 m/s. While accelerating through the barrel of the rifle, the bullet moves a distance of 0.930 m. A. What is the time it takes to get through the barrel? B. Determine the acceleration of the bullet.

a=

vi=

vf=

d=

t=

5: A car traveling at 24.0 m/s can slow down at a rate of 8.00 m/s^2 . If while driving this car you notice a rhino in the street 41.0 m in front of the car, can the car stop without hitting the rhino? Give mathematical evidence

a=

vi=

vf=

d=

t=

6. A car has a velocity of 15.0 m/s. It then accelerates at a uniform rate of 3.50 m/s^2 for the next 5.00 seconds. What distance does the car cover during this time?

a=

vi=

vf=

d=

t=

7. When a driver hits the brakes, his car decelerates at a uniform rate of 2.0 m/s. His car stops in 9.0 m. How long does it take him to stop?

a=

vi=

vf=

d=

t=

8. A ball free falls from the top of the roof for 5.00 seconds. A. How far did it fall? B. What is its final velocity at the end of 5.00 seconds?

a=

vi=

vf=

d=

t=

9. A bobsled team accelerates the sled to go to 150 m/s in 3 seconds from rest. (a)What is the sled's acceleration? (b) What is the distance the bobsled team traveled?

a=

vi=

vf=

d=

t=