

# Friction, Gravity & Air Resistance Practice

1. Describe the force of friction in your own words:
2. What 2 factors affect the amount of friction between 2 objects?
3. Describe the force of gravity in your own words:
4. What determines the size of the gravitational force?
5. How fast do object accelerate while falling on earth?
6. Why are we pulled towards the center of the earth when we jump?
7. Describe air resistance in your own words:
8. What 2 factors affect the amount of air resistance for a falling object?
9. Describe terminal velocity in your own words:
10. If an object is in free fall, what forces are acting on it?

11. An object that falls accelerates at  $9.8\text{m/s}^2$ . So its velocity increases by  $9.8\text{m/s}$  each second that it is falling. Complete the following table that follows the speed of an object falling:

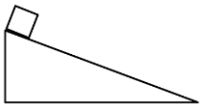
1s	2s	3s	4s	5s	6s	7s	8s	9s	10s
9.8m/s (9.8 + 0)	19.6m/s (9.8 + 9.8)	29.4m/s (9.8+9.8+9.8)							

12. If an object falls for 5s, how fast will it be moving at the end of the motion?

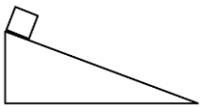
13. If an object falls for 10s, how fast will it be moving at the end of the motion?

14. What could you do to reduce the velocity of the falling object?

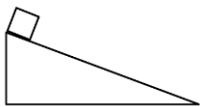
15. A box is sliding down a ramp at  $+10\text{m/s}$ . Friction causes the box to accelerate at  $-2\text{m/s}^2$ , how long will it take the box to stop sliding?



16. A box is sliding down a ramp that is at  $+10\text{m/s}$ . Friction causes the box to accelerate at  $-4\text{m/s}^2$ , how long will it take the box to stop sliding?



17. A box is sliding down a ramp at  $+30\text{m/s}$ . Friction causes the box to accelerate at  $-1\text{m/s}^2$ , how long will it take the box to stop sliding?



18. Which ramp (15, 16 or 17) do you think had the most friction? Why do you think that?