Name: _____ Date: _____ Hour: _____

Linear Motion Problems

$v = \frac{d}{t}$ $d = vt$ $t = \frac{d}{v}$ $\Delta v = v_f - v_o$ $a = \frac{\Delta v}{t}$ $v = at$ $v = gt$ $d = \frac{1}{2}gt^2$ $t = \sqrt{\frac{2d}{g}}$

1. What is the speed of a rocket that travels 9000m in 12s?

2. After an impact involving a non-functioning satellite, a paint chip leaves the surface of a satellite at a speed of 96m/s. After 14s how far has the chip traveled?

3. The space shuttle Endeavor is launched to an altitude of 400,000m above the surface of the Earth. The shuttle travels at an average rate of 600m/s. How long will it take for Endeavor to reach its orbit?

4. How long will your trip take in hours if you travel 350km at an average speed of 80km/hr?

5. What is the speed of a person walking in meters per second if they travel 1000m in 20 minutes?

6. How far will you travel in 180s if you travel at a rate of 6m/s?

7. In .5s a projectile goes from 0m/s to 300m/s. What is the acceleration of the projectile?

8. The space shuttle releases a space telescope into orbit around the Earth. The telescope goes from being stationary to traveling at a speed of 1700m/s in 25s. What is the acceleration of the satellite?

9. An apple drops from a tree and hits the ground 2s later. What is its velocity just before it hits the ground?

10. A skydiver jumps from a helicopter hovering at a high altitude. If there was no air resistance, how fast would the skydiver be falling 12s after the jump?

11. What vertical distance will a penny dropped from rest fall in 12s of free fall?

12. A flying squirrel leaps from a tree 40m high. How long will it take for the squirrel to hit the ground, ignoring air resistance?