

Equations:  

**Part I: Chuck Norris**

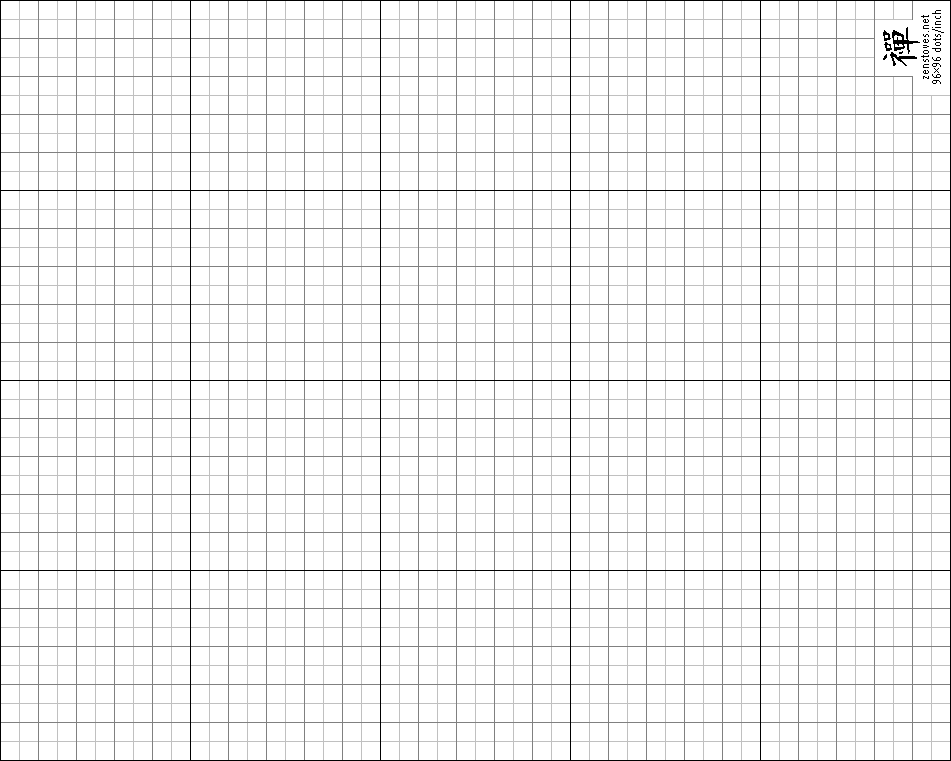
Directions: Answer the following questions. Show your work and include the units.

1. Contrary to popular belief, America is not a Democracy, it’s a Chucktatorship. In order for Chuck to rule America, he must fly around the states. His plane takes off from rest, and reaches a speed of 180 km/min in 1.5 minutes. What is the plane’s acceleration?
2. The chief export of Chuck Norris is pain. When making deliveries, Chuck sprints 100 m in .025 seconds. How fast (what velocity) is he running?
3. When Chuck Norris sends in his taxes, he sends blank forms and includes only a picture of himself, crouched and ready to attack. Chuck Norris has not had to pay taxes ever. Chuck can spring towards an enemy at a rate of 12 m/s. If the bad guys are 15 meters away, how long does it take for them to get tackled?
4. When Chuck Norris falls in water, Chuck Norris doesn’t get wet, water gets Chuck Norris. Chuck falls at a rate of 9.8 m/s2. He starts at rest and reaches a velocity of 29.4 m/s as he dives in. How long does it take him to hit the water?
5. If you ask Chuck Norris what time it is, he always says, “Two seconds ‘til.” As you ask, “Two seconds ‘til what?” he roundhouse kicks you in the face. If Chuck’s roundhouse covers a distance of 3 meters in .045 seconds, how fast is his foot traveling?
6. Chuck Norris once shot down a German fighter plane with his finger by yelling, “BANG!!” That plane had traveled 1000 km east when Chuck Norris yelled “Bang”, but then was thrown 274 km west after Chuck yelled. Draw the vectors (head to tail) and solve for the resultant velocity.
7. When Chuck Norris was denied an Egg McMuffin at McDonald’s because he was too late, he kicked the store so hard it became a Wendy’s. After that, Chuck jumped back onto his horse and rode off into the sunset. If he rode at a rate of 3 m/s, how long would it take for Chuck to ride 350 km?
8. Thousands of years ago Chuck Norris came across a bear. It was so terrified that it fled north into the arctic and all of its decedents now have white hair. Before that bear fled to the Arctic, it tried to climb a tree. The bear climbed 17m directly up the tree then turned around and ran 8 m straight down the tree (cartoon style) to escape. Then Chuck Norris cut the tree down with a herring. Draw the vectors (head to tail) and solve for the resultant displacement of the bear.
9. The quickest way to a man’s heart is with Chuck Norris’s Fist. From rest his hand accelerates at 120 m/s2 for .5 seconds. What was its final velocity?
10. A wide receiver runs a route straight down the field for 20 meters. However, the throw is intercepted and he chases the defender straight backwards along the same path for 30 meters. Chuck Norris never has to leave the bench and is awarded MVR (Most Valuable Round-house.) What is the wide receiver’s final position to where he started? Draw the vectors and give the correct answer.

**Part II: Graphing**

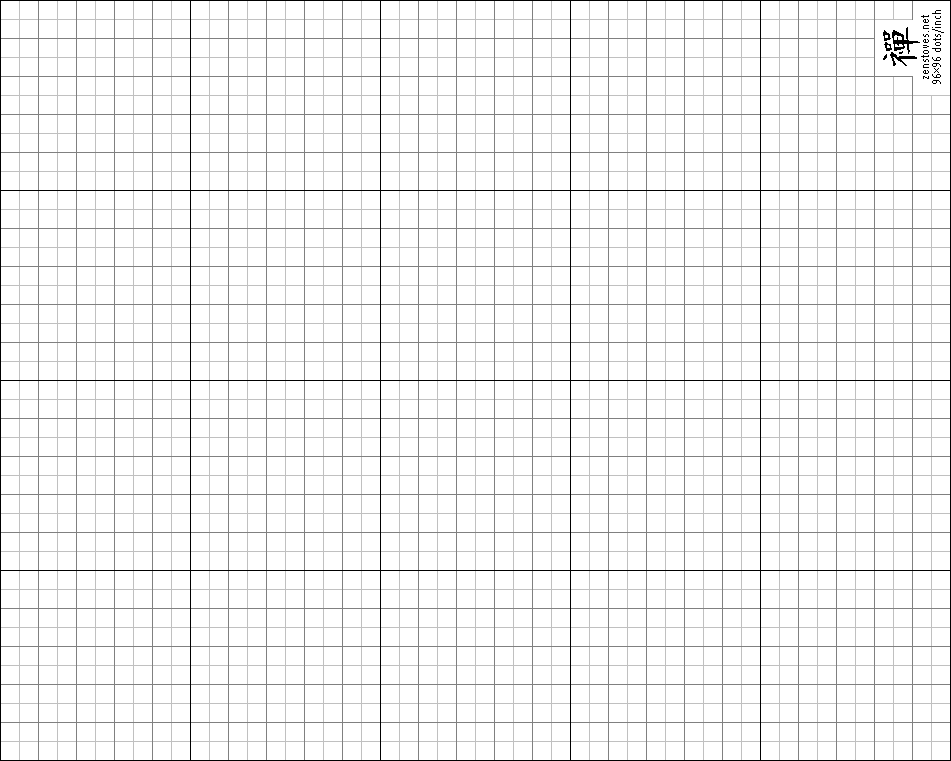
Directions: Chuck Norris is taking a leisurely walk with his pet dinosaur. Using the data in the following table, construct a graph of Chuck’s displacement vs. time. Label each axis and title your graph. Then answer the questions about that graph.

|  |  |
| --- | --- |
| **Displacement (m)** | **Time (sec)** |
| 100 | 2 |
| 200 | 4 |
| 350 | 7 |
| 650 | 13 |
| 850 | 17 |
| 1000 | 20 |



1. Does this graph represent constant or changing velocity? How do you know?
2. Explain why you can tell that this graph is showing velocity and not acceleration.
3. Find the slope of the line and find the average velocity.

Directions: The dinosaur got off his leash! Using the data in the following table, construct a graph of displacement vs. time that shows our speed while Chuck Norris chases his newly freed pet. Make sure to title your graph and label each axis. Then answer the questions about that graph.



|  |  |
| --- | --- |
| **Displacement (m)** | **Time (sec)** |
| 150 | 2 |
| 250 | 5 |
| 400 | 6.5 |
| 700 | 13 |
| 900 | 18.5 |
| 1000 | 20 |

1. Does this graph represent constant or changing velocity? How do you know?
2. How would you be able to tell which section of the graph represents the highest velocity?
3. Which section of the graph represents the highest velocity?
4. There is another way that you could draw this graph that shows THE EXACT SAME INFORMATION, but has different axis. Draw me a basic rough graph below that would show the same information (dinosaur’s displacement and time), but that has different axis. *Hint: The time axis will be the same on both graphs, but the Y axis will change.*