Physics Review Sheet

Vocabulary
*Match the vocabulary term with its definition*

<table>
<thead>
<tr>
<th>Acceleration</th>
<th>cm/s</th>
<th>cm/s²</th>
<th>Reference Point</th>
</tr>
</thead>
<tbody>
<tr>
<td>Balanced Forces</td>
<td>Newtons</td>
<td>Speed</td>
<td>Velocity</td>
</tr>
<tr>
<td>Force</td>
<td>Gravity</td>
<td>Friction</td>
<td>Inertia</td>
</tr>
<tr>
<td>Newton's First Law</td>
<td>Newton's Second Law</td>
<td>Newton's Third Law</td>
<td>Unbalanced Forces</td>
</tr>
</tbody>
</table>

1. A push or a pull
2. An object at rest will remain at rest and an object in motion will remain in motion (and travel in a straight line) unless it is acted on by a force
3. Forces that cancel each other out and DO NOT result in motion
4. A change in speed or direction
5. Force that pulls all objects toward the center of the earth
6. The more force on an object the more it accelerates. But the more massive it is, the more it resist acceleration
7. The units for force
8. The units for speed
9. Force that opposes motion and causes things to slow down
10. For every action there is an EQUAL and OPPOSITE reaction
11. How far something goes in a certain amount of time
12. The units for acceleration
13. An objects tendency to keep doing what it is already doing
14. Stationary object used to determine the motion of an object
15. How fast an object goes and the direction it is traveling in
16. Force that pushes more in one direction and results in the motion of an object
Problems
Solve each of the problems using known equations

17. A train that travels 100 meters in 4 hours is traveling at what average speed?

18. You want to accelerate an object with a mass of 20 kg to 4 m/s$^2$. What force is required to accomplish this?

Short Answer

19. Two objects traveling at the same speed will have different velocities if what about their motion is different?

20. The statement that the motion of a hurricane is 20 km per hour in an easterly direction is a description of the hurricane's what?

21. If a person is traveling in a car that stops suddenly, the person keeps moving forward because of what?

22. How could you decrease friction?

23. What is the relationship between mass and inertia?

24. Why is the moon considered to be accelerating?
25. According to Newton's Second Law of Motion, you could increase acceleration by doing what?

**Graphing**

*Answer the following questions based on graphing skills.*

26. In graphing motion, the steepness of the slope represents what?

27. On a graph showing distance versus time, a horizontal line represents what?

28. What are the manipulated and responding variables in the graph (above)?

29. How far did Kathy jog in the first four minutes?

30. How long after Kathy started jogging did Rachel begin jogging?

31. What is Rachel's speed at 3 minutes?

**Essay**

Describe how the straw rockets demonstrated all three of Newton's Laws of Motion.