Name_____

Acceleration Worksheet

ACCELERATION CALCULATIONS

Acceleration means a change in speed or direction. It can also be defined as a change in velocity per unit of time.

$$a = \frac{v_f - v_i}{t}$$

a = acceleration
v_f = final velocity
v_i = initial velocity
t = time

Calculate the acceleration for the following data. INCLUDE UNITS.

	Initial Velocity	Final Velocity	Time	Acceleration
1.	0 km/s	24 km/s	3 s	
2.	0 m/s	35 m/s	5 s	
3.	20 km/s	60 km/s	10 s	
4.	50 m/s	150 m/s	5 s	
5.	25 km/s	1200 km/s	2 min	

Remember to use the correct units

Be careful

6. **A car accelerates from stop to 60 km/hr in 10 seconds. What is its acceleration?**
   SHOW YOUR WORK

7. **A car accelerates from 25 km/hr to 55 km/hr in 30 seconds. What is its acceleration?**
   SHOW YOUR WORK

8. **A train is accelerating at a rate of 2.0 km/hr/sec. If its initial velocity is 20 km/hr, what is its velocity after 30 seconds?**
   SHOW YOUR WORK

9. **A runner achieves a velocity of 11.1 m/s in 9 seconds after he begins. What is his acceleration?**
   SHOW YOUR WORK

GRAPHING DISTANT VS. TIME

Plot the following data on the graph and then answer the questions below

Time (sec)	Distance (km
0	0
10	5
20	12
30	20
40	30
50	42
60	56

1. **What is the average speed at 20 seconds?_____**

2. **What is the average speed at 30 seconds?_____**
3. **What is the acceleration between 20 and 30 seconds?_____**
   SHOW YOUR WORK

4. **What is the average speed at 40 seconds?_____**
5. **What is the average speed at 60 seconds?_____**
6. **What is the acceleration between 40 and 60 seconds?_____**
   SHOW YOUR WORK

7. **Is this object accelerating at a constant rate?_____ Explain**

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