**Unit 7 – Motion**

*Directions: Fill in the blanks with the correct information for time, distance and speed.*

|  |  |  |  |
| --- | --- | --- | --- |
|  | Definition | Units | Equation |
| Time |  |  | t =  |
| Distance |  |  | d =  |
| Speed |  |  | s =  |
| Average Speed= |
| Acceleration |  |  | a =  |

1. If you increase distance, what would happen to speed?
2. If you increase time, what would happen to speed?

*Solve the following speed problems using the speed triangle.*

1. A goat on wheels moves 62 meters across the barnyard in a time of 12 seconds to eat a bag of popcorn. What is the speed of the goat?

|  |  |
| --- | --- |
| Givens | Solving For |
| Equation | Substitution | Answer with Units |

1. A child slides down a playground slide a distance of 4 m in 3 seconds. How fast is he sliding?

|  |  |
| --- | --- |
| Givens | Solving For |
| Equation | Substitution | Answer with Units |

1. If an Oreo cookie rolls down a 59 cm table in 2.5 s, how fast is it rolling?

|  |  |
| --- | --- |
| Givens | Solving For |
| Equation | Substitution | Answer with Units |

*Directions: Answer the following questions using the graph below:*

Distance (cm)

Time (s)

Graph 1

1. What does the line represent in this graph; speed, distance, or time? How do you know?
2. Draw and label on the graph above, what it would look like if the object was slowing down.
3. Draw and label on the graph above, what it would look like if the object is moving at a constant speed.
4. Calculate the average speed of the object in the graph.

|  |  |
| --- | --- |
| Givens | Solving For |
| Equation | Substitution | Answer with Units |

*Directions: Choose the word or phrase that best answers the question.*

1. Which of the following do you calculate when you divide total distance traveled by the total travel time?
	1. average speed
	2. constant speed
	3. variable speed
	4. instantaneous speed
2. Which of the following is a proper unit of speed?
3. s/km2
4. km/h
5. m/s2
6. cm/s
7. Which of the following is a proper unit of acceleration?
8. s/km2
9. km/h
10. m/s2
11. cm/s
12. Which is not used in calculating acceleration?
13. initial velocity
14. average speed
15. time interval
16. final speed
17. In which of the following conditions does the car NOT accelerate?
18. A car moves at 80 km/hr on a flat, straight highway.
19. The car slows from 80 km/hr to 35 km/hr.
20. The car turns a corner.
21. The car speeds up from 35 km/hr to 80 km/hr.
22. How can speed be defined?
23. acceleration/time
24. change in velocity/time
25. distance/time
26. displacement/time
27. Another term for increasing speed is
28. Another term for decreasing speed is
29. What are the two variables that speed depends on?
30. What are the two variables that acceleration depends on?
31. If you increase speed of an object, what happens to acceleration?
32. If you increase the time it takes for an object to travel, what happens to its acceleration?

*Solve the following acceleration problems using the acceleration triangle.*

1. What is the acceleration of a Pleasant Valley cross country runner who speeds up from rest to 8 m/s in two seconds?

|  |  |
| --- | --- |
| Givens | Solving For |
| Equation | Substitution | Answer with Units |

1. What is the acceleration of a Pleasant Valley driver’s education car which slows down from 120 km/hr to 30 km/hr in 30 minutes? (HINT: watch your units!)

|  |  |
| --- | --- |
| Givens | Solving For |
| Equation | Substitution | Answer with Units |