

Speed Calculations

Today's Date

Focus Question:

How can you solve for the missing variable in any speed, distance, or time equations?

Evidence: Speed Notes, Formula Review, and Practice

1. Using the SDT Triangle

2. How To Solve and Proper Metric Units

3. Practice Problems (Notebook page 43)-Show your work and circle the correct answer so it is clear! Lastly, don't forget units.

- a. How far can a cheetah run if it runs at a speed for 20 m/s for 15 seconds?
- b. A car travels for 6 hours at an average speed of 70 km/hr. How far did the car travel?
- c. What distance does a snail move if the snail moves for 2 hours at 50 m/hr?
- d. How much time does it take for a horse to run 1.5 miles at an average speed of 15 mi/hr?
- e. How long does it take a marathon runner to complete a 26-mile race at an average speed of 12 mi/hr?

Speed Calculations

Experiment: Measuring Speed and Acceleration

1. Card Flight Calculation

| Calculation of Speed and Acceleration for the “Flick of the Card” | | | | |
|---|---------------------------------|-------------------------------------|----------------------------------|------------------------------------|
| Trial | Distance Card Traveled (meters) | Time of flight: flick to stop (sec) | Speed of Card (w/ unit) | Acceleration of the Card (w/ unit) |
| 1 | | | | |
| 2 | | | | |
| 3 | | | | |
| Best Value: Speed of Card | | | Best Value: Acceleration of Card | |

2. Penny Drop Calculation

| Calculation of Speed and Acceleration for the “Penny Drop” | | | | |
|--|----------------------------|------------------------|-----------------------------------|-------------------------------------|
| Trial | Distance of Penny (meters) | Time of drop (seconds) | Speed of Penny (w/ unit) | Acceleration of the Penny (w/ unit) |
| 1 | | | | |
| 2 | | | | |
| 3 | | | | |
| Best Value: Speed of Penny | | | Best Value: Acceleration of Penny | |

3. Rocket Day # 2 Flight Calculations

| Calculation of Speed and Acceleration for the “Rocket Flight #2” | | | | |
|--|-----------------------------|-----------------------|------------------------------------|----------------------------------|
| Flight Day #2 | Altitude of Flight (meters) | Thrust Time (up time) | Speed of Rocket (w/ unit) | Acceleration of Rocket (w/ unit) |
| 1 st attempt | | | | |
| 2 nd attempt | | | | |
| Best Value: Speed of Rocket Flight | | | Best Value: Acceleration of Rocket | |

Speed Calculations

Independent Practice (Notebook Page 42)

Directions: Answer the questions in your notebook. Show all of your work and remember to label the units!

1. Calculate the distance that you would travel if you drove for 8 hours at 60 miles per hour?
2. How long does it take to travel 120 miles at 40 miles per hour?
3. A car travels 300 meters in 5 hours. Calculate the average speed of the car.
4. An athlete can run long distances at 4 m/s. How far can she run in 50 seconds?
5. Andrew rows at an average speed of 2 m/s. How long does it take him to row 800m?
6. Calculate the distance that you would travel if you drove from 30 minutes at 33 m/min.
7. How long does it take to travel 385 miles at 70 miles per hour?
8. If a car is traveling at 62 meters per second, how long would it take the car to travel 13,786 meters?
9. What is the average speed of Sally's drive if she drove for 2.5 hours at 50 m/hr and then drove 80 meters at 20 m/hr?
10. A snail moves 5 m in 2 hours. If the snail moves at the same speed, how long would it take him to move 20 m?

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