

Name _____ Class _____ Date _____

PRACTICE!

HOTS Question-Higher Order Thinking Skills

Total ==5 points!



Determine the average speeds of a Pinewood Derby car.

Cindy and Santiago have just finished building model cars for their school's annual Pinewood Derby. In order to test their cars, Santiago sets Cindy's car at the top of a 240 cm long ramp and releases it. Cindy uses a stopwatch to measure how long it takes the car to reach the bottom of the ramp. The two decide to conduct three trials for each car and then calculate the overall average speeds. Cindy recorded her initial results in the table below:

Cindy's Car

Trial #	Time (Seconds)	Distance	Average Speed cm/s
1	6	240 cm	1. _____ cm/s
2	10	240 cm	2. _____ cm/s
3	12	240 cm	3. _____ cm/s

Work:**The Race Is On!**

Complete the third column of the chart above, and show your work on the right of the chart.

What was the overall average speed of Cindy's car? 4. _____ cm/sSantiago's Car**

Trial #	Time (Seconds)	Distance	Average Speed cm/s
1	10	240 cm	24 cm/s
2	9.6	240 cm	+25 cm/s
3	9.23	240 cm	+26 cm/s

$$75 \div 3 = 25 \text{ m/s} \quad (\text{Overall Average Speed})$$

Santiago's car has an overall average speed of **25 cm/s. If he could increase his car's overall average speed by **10%**, what would his car's new overall average speed be?

5. _____ cm/s

Bonus Question-(optional extra credit point)

By adding lubricant/oil to the wheels of his car, Santiago determines that he can increase his car's average speed from **25 cm/s** to **30.0 cm/s**. What percentage increase does this represent? Show your work. (no work, no point!)

Answer: _____ %