

REVISION BOOKLET
MIDTERM EXAM FIRST SEMESTER
2018
PHYSICS

Name: _____

Grade: _____

Date: _____

QA: Fill-up. Fill in the blanks by choosing the words from the box below:

scalar	vector	resultant	hypothesis
scientific method	independent variable	graphs	acceleration
seconds	accurate	speed	displacement
velocity			

1. The method used by physicist to study and solve a problem is _____.
2. _____ are quantities that has both size (also called magnitude) and direction.
3. The SI base unit of time is _____.
4. _____ is the factor that is changed or manipulated during an experiment.
5. A measurement is said to be _____ when it is close to the real or true value.
6. _____ makes it easier to interpret data, identify trends, and show relationship among a set of variables.
7. _____ is a suggested solution to a problem.
8. A change in position is called _____.
9. A vector that represents the sum of two other vectors is _____.
10. _____ is the rate of change in velocity over change in time.
11. _____ is the distance over a given period of time.

QB: Circle 'True' if the statement is correct and 'False' if the statement is wrong.

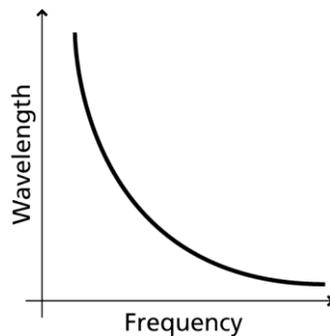
1. All the zeros in 2,000,000. 000 are significant	True	False
2. In a scientific method, deductions are tested to find out whether they are valid.	True	False

3. The last digit in any measurement is the significant figure.	True	False
4. To avoid parallax errors, laboratory instruments should be read from the side.	True	False
5. When constructing a graph from data, the range of the x-axis is determined by the range of the dependent variable.	True	False
6. A straight line represents a quadratic relationship.	True	False
7. A scalar is a measurement that does not have a direction.	True	False
8. The scientific notation 6.02×10^{-2} is similar as 0.0602	True	False
9. The figure 2.3005 cm has 5 significant figure.	True	False
10. Observations in scientific investigation are carried using our senses.	True	False
11. Acceleration vectors show the magnitude and direction of the average acceleration during a time interval	True	False
12. Position-time graphs can be used to find the position and time of an object.	True	False

QC: Choose the best answer from the following options below:

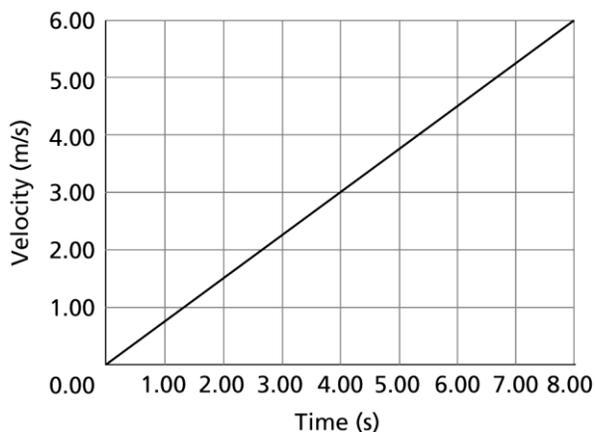
- The base SI unit for length is the _____.
 - Foot
 - Inch
 - Meter
 - Kilogram
- How many significant figure are in the measurement 2.560×10^4 ?
 - 1
 - 2
 - 3
 - 4

3. A _____ is the current best explanation for why things work the way they do.
- A. Hypothesis
 - B. Method
 - C. Prediction
 - D. Theory
4. Which of the following is not an SI base unit?
- A. Celsius
 - B. Kilogram
 - C. Meter
 - D. Seconds
5. The graph below shows the relationship between the frequency and wavelength of light waves. Which type of relationship do the two variables exhibit?



- A. Inverse
 - B. Linear
 - C. Parabolic
 - D. Quadratic
6. The average speed is _____ the average velocity.
- A. always slower than
 - B. the same as
 - C. the indirect value of
 - D. the absolute value of

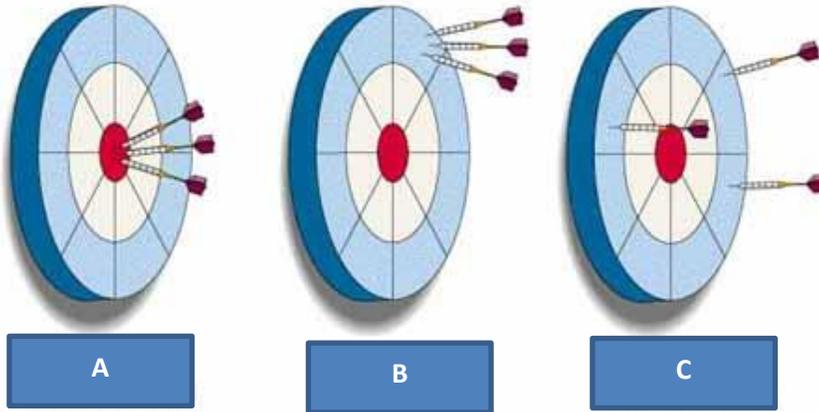
7. If a sprinter runs from rest to a final velocity of 8.0 m/s, what will be his acceleration after 4.0 s?
- A. 8.0 m/s²
 - B. 4.0 m/s²
 - C. 2.0 m/s²
 - D. 0.5 m/s²
8. A car's velocity increases from 10.0 m/s to 22.0 m/s over a period of 3.0 s. What is the car's average acceleration?
- A. -4.0 m/s²
 - B. -3.0 m/s²
 - C. 3.0 m/s²
 - D. 4.0 m/s²
9. The graph shows the velocity of a bicycle as the rider moves away from a curb.



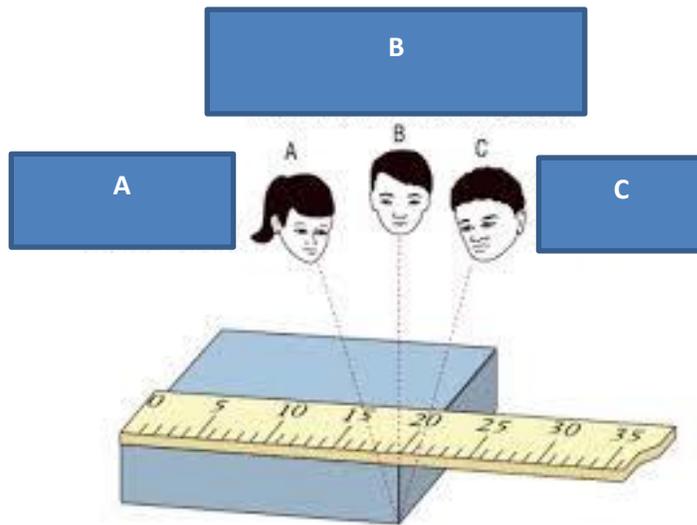
- Based on the slope of the graph, what is the average acceleration of the bicycle?
- A. 6.00 m/s²
 - B. 3.00 m/s²
 - C. 1.33 m/s²
 - D. 0.750 m/s

QD: Answer the following questions:

1. Refer to the diagrams below, explain why diagram B is described as poor accuracy but good precision :



2. Explain which position an observer should read the measurement in order to avoid parallax error?



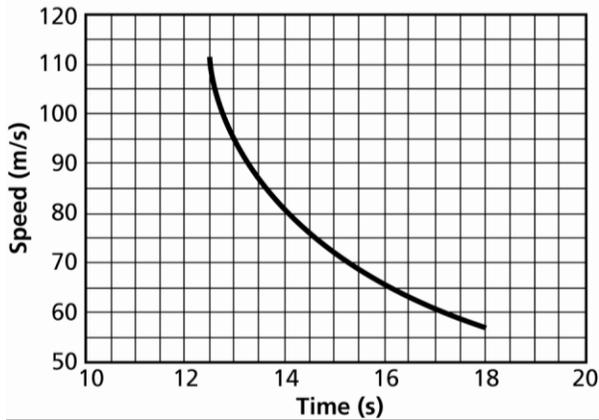
3. A student measures the mass of a standard set of calibration weights on a triple-beam balance and an electronic balance, obtaining the data in **Table 2**.

Table 2		
Standard Value	Triple-Beam Balance	Electronic Balance
1.000 g	1.001 g	1.1033 g
2.000 g	2.002 g	2.1033 g
3.000 g	3.001 g	3.1034 g
5.000 g	5.000 g	5.1033 g

a. Which set of results is more precise? Explain your answer.

b. Which set of results is more accurate? Explain your answer.

4. Describe the relationship between the variables shown in the graph below.



QE: Answer the following questions. In order to receive credit for problem solving you **MUST** show your work. You can use a calculator but you must show all of the steps in the spaces provided.

1. Express the measurements in scientific notation.

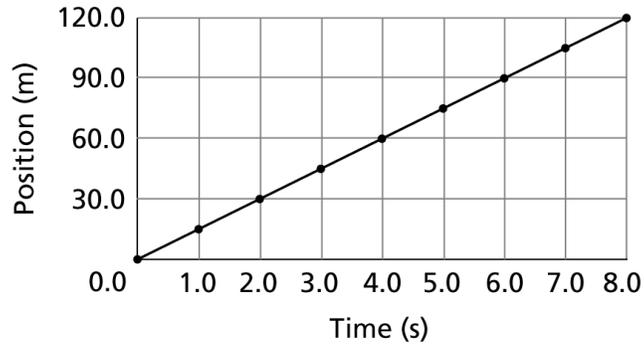
a. 142,000 s

b. 0.00809 kg

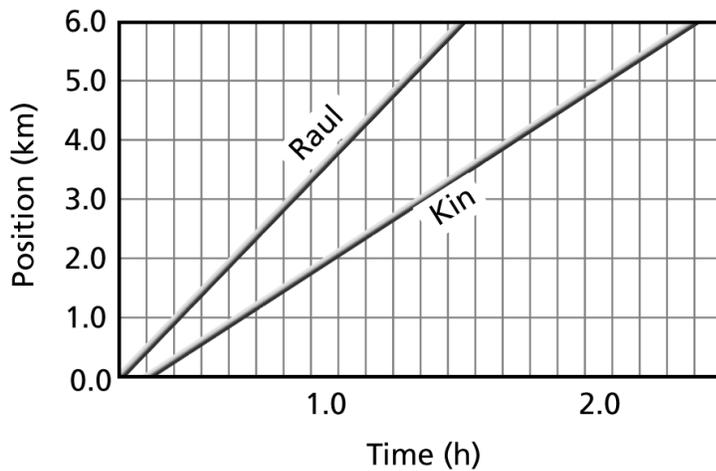
c. 501,000,000 m

2. A girl rides her bike and reached a distance of 100 m for 20 s. What is her speed in m/s?

3. The position-time graph represents part of a car trip along a straight road as shown below. What is the average velocity of the car for the first 8 seconds?

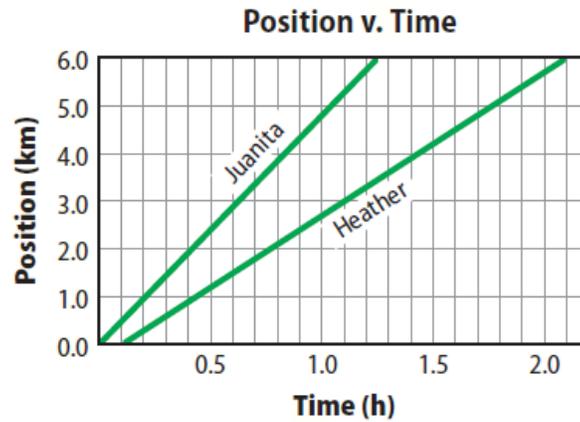


4. Use the following graph to answer problem number 4.



Which walker is the faster one? How do you know?

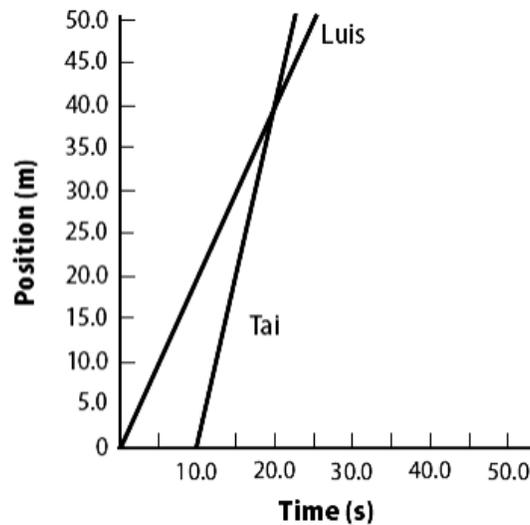
5. Analyze the graph below and answer the questions that follow:



a. Where was Juanita at time $t = 0.5$ h? _____

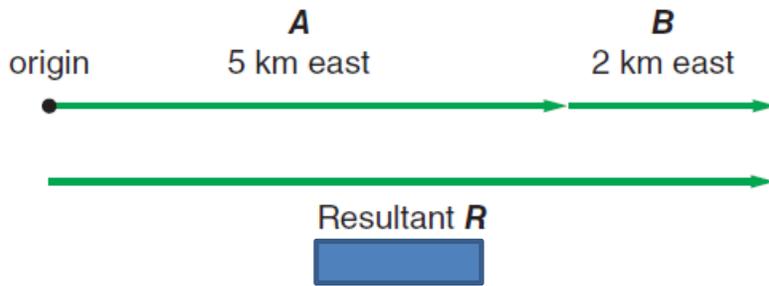
b. At what time was the magnitude of Heather's position equal to 2.0 km? _____

6. Analyze the graph below and answer the question that follow:

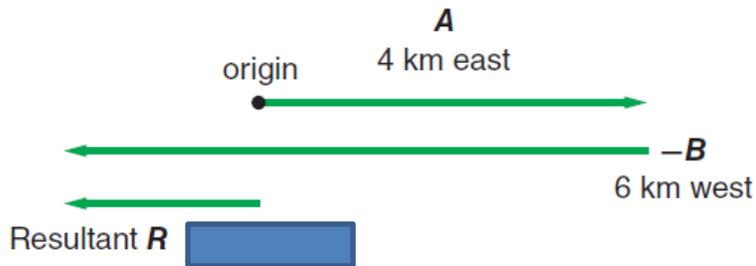


When and where does Tai pass Luis? _____

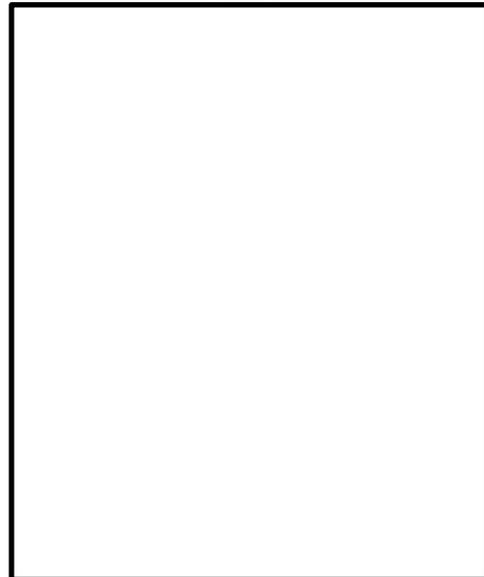
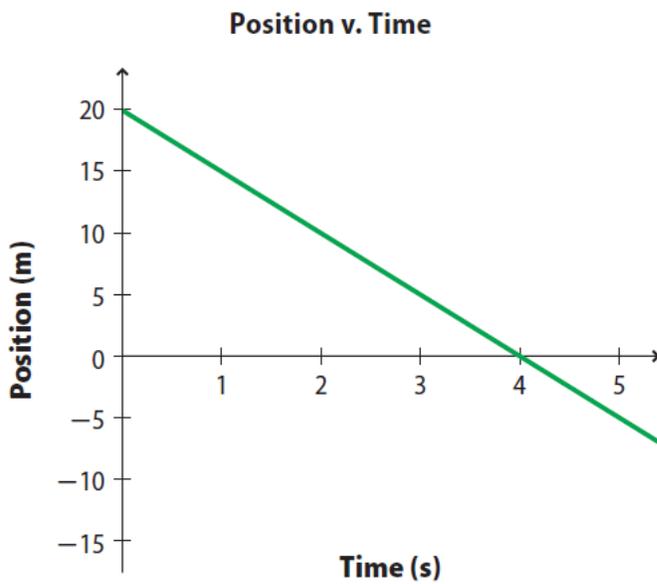
7. Refer to the diagram below. What is the resultant R of the two vectors?



8. Refer to the diagram below. What is the resultant R of the two vectors?



9. Refer to the position-time graph below, calculate the average speed.



10. A cyclist accelerates from 0 m/s to 8 m/s in 3 seconds. What is his acceleration?
Is this acceleration higher than that of a car which accelerates from 0 to 30 m/s in 8 seconds?



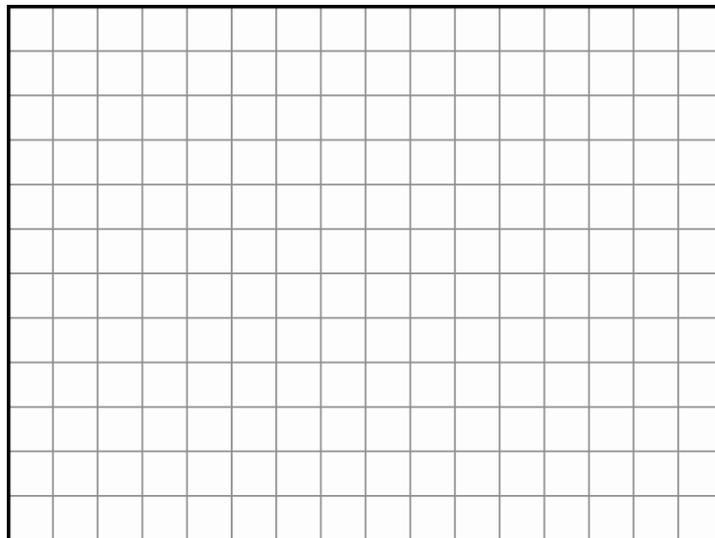
11. A car advertisement states that a certain car can accelerate from rest to 3 m/s in 7 seconds. Find the car's average acceleration.



QF: Answer the following question.

1. Using the data in the table, create a graph of the amount of rainfall versus time.

Time (days)	Cumulative Rainfall (cm)
0.0	0.0
0.5	1.00
1.0	2.00
1.5	3.00



Understanding Physics Concepts

For each definition on the left, write the letter of the matching term on the right.

- | | | |
|-----------|---|----------------------------------|
| _____ 1. | a system that defines the zero point of the variable you are studying | a. motion diagram |
| _____ 2. | the speed and direction of an object at a particular instant | b. particle model |
| _____ 3. | another term given for the size of a vector | c. coordinate system |
| _____ 4. | the location of an object relative to an origin | d. origin |
| _____ 5. | $t_f - t_i$ | e. position |
| _____ 6. | ratio of the change in position to the time interval during which the change occurred | f. distance |
| _____ 7. | a zero point in a coordinate system | g. magnitude |
| _____ 8. | a graph with time data on the horizontal axis and position data on the vertical axis | h. vector |
| _____ 9. | a quantity with both magnitude and direction | i. scalar |
| _____ 10. | a series of images showing the position of a moving object over equal time intervals | j. resultant |
| _____ 11. | a vector that represents the sum of two or more other vectors | k. time interval |
| _____ 12. | the length of a vector that represents how far an object moved | l. displacement |
| _____ 13. | a quantity that only consists of a magnitude without a direction | m. position-time graph |
| _____ 14. | the location of an object at a particular instant | n. instantaneous position |
| _____ 15. | $x_f - x_i$ | o. average velocity |
| _____ 16. | the absolute value of the slope on a position-time graph | p. average speed |
| _____ 17. | a simplified motion diagram that shows the object in motion as a series of points | q. instantaneous velocity |