

# UNIT 1 – WAVE MOTION

IPOD Questions



# IT'S *THE* PROBLEM OF *THE* DAY

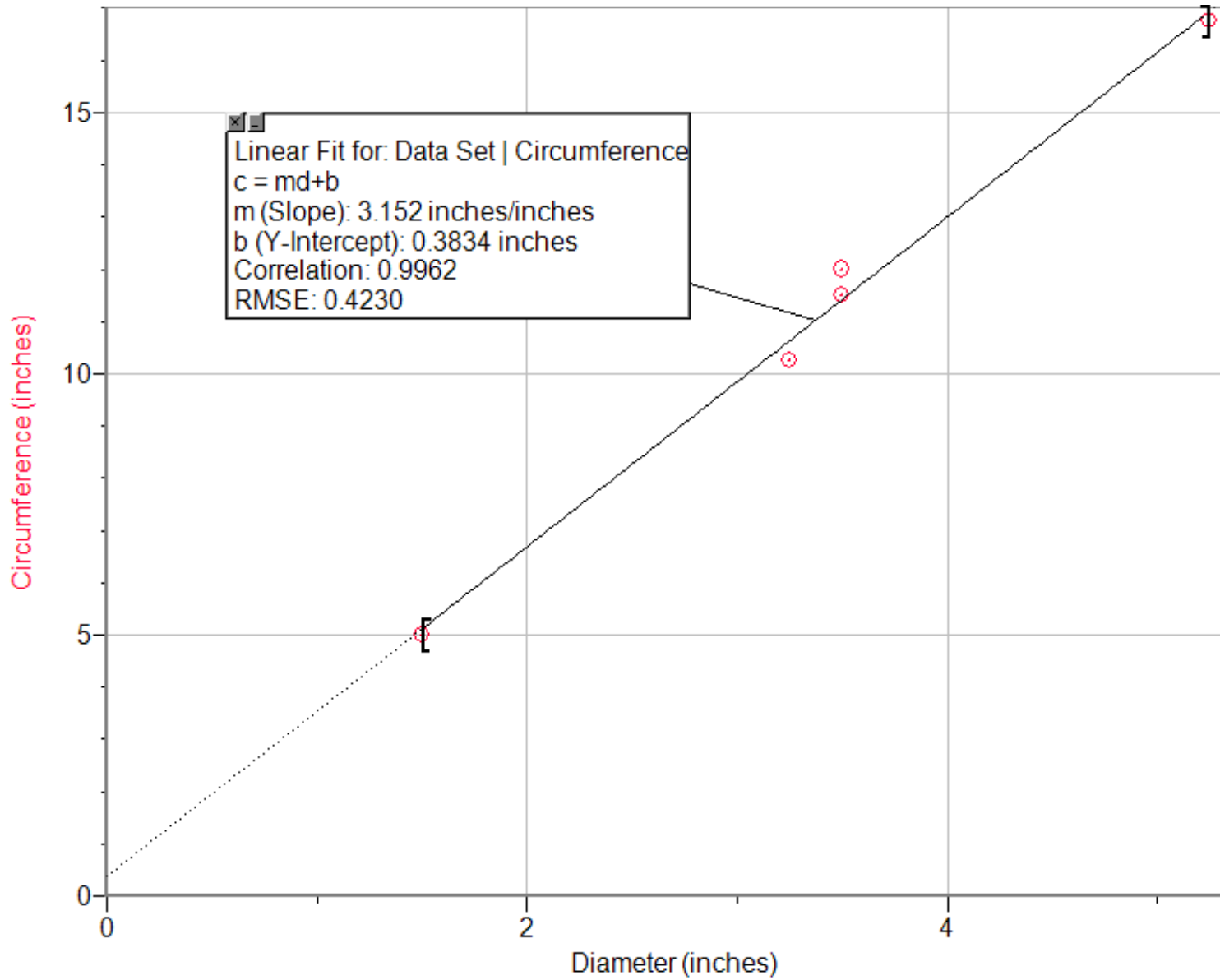
## IPOD # 1

Using yesterday's lab or HW as a reference,  
describe the components that are  
needed on all graphs.



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## IPOD # 2



- Draw a sketch of this graph in your IPOD books.
- Provide a title for this graph.
- Describe the relationship between the variables.
- Write the general equation for the line.
- Write the translated equation for the line.
- If the independent variable was doubled, what *specific* change would occur with the dependent variable?



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## IPOD # 3

$$1 \text{ km} = 1000 \text{ m}$$

$$1 \text{ m} = 10 \text{ dm}$$

$$1 \text{ m} = 100 \text{ cm}$$

$$1 \text{ m} = 1000 \text{ mm}$$

*Convert the following problems into the specified quantities.*

- 1) 15.7 centimeters to meters
- 2) 200 mm to km
- 3) 30 miles/minute to meters/second (1 km = 0.62 mi)
- 4) 25 meters/second to inches/hour (1 in = 2.52 cm)



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## IPOD # 4

If a wave covers a distance of 20 miles in 15 minutes, what is the wave speed in:

a) mi/hr?

b) m/s? (1 km = 0.62 mi)



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## IPOD # 5

A physics teacher attaches a slinky to the wall and begins introducing pulses with different amplitude. Which of the two pulses below will take the least amount of time to reach the wall?




Justify your answer:

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## IPOD # 6

Two friends are resting on an offshore raft after a swim. They estimate that 3.0 m separates a trough and an adjacent crest of waves on the lake. They count 14 crests that pass the raft in 20.0 s.

- a) How fast are the waves moving?  
*Hint: draw a picture of the crest/trough and try to fit the variables into the picture.*
- b) What is the relationship between wavelength and frequency in a given medium?
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## IPOD # 7


Using the PhET Wave Interference pattern, describe how you can see any of the 4 wave behaviors (constructive/destructive interference, reflection, refraction, diffraction).





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## IPOD # 8

- 1) Explain how we can see ordinary, nonluminous classroom objects.
  - 2) What happens to the wavelength of light as the frequency increases?
  - 3) Which has the highest frequency, microwaves or x-rays?
  - 4) The wavelength of red light is about  $7.0 \times 10^{-7}$  m. What is its frequency?
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## IPOD # 9

While getting ready in the morning describe the reflected image of yourself that you saw. Try to use the following:

**L** – *location of image*

**O** – *orientation of image*

**S** – *size of image*

**T** – *type of image (real or virtual)*



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## IPOD # 10

- 1) What are the 3 primary colors and 3 secondary colors of light?
- 2) If cyan light were desired, what primary colors of light should be added?
- 3) If a printed picture of a swimming pool was desired in blue, what color pigments would a printer need to apply to the paper?
- 4) A piece of paper appears magenta in white light. What color will it appear in red light?
- 5) A piece of paper appears blue in white light. What color will it appear in yellow light?

