

Epidemiology & Statistics

e • pi • de • mi • o • lo • gy

Circle the stressed syllable(s): remember primary stress and secondary stress.

Which sound goes with which syllable (in US English)?

[ɒ] as in *bot*

[ɪ] as in *bit*

[e] as in *bed*

[ə] as in *an*

[i:] as in *sheet*

Working definition: what could be a good way of defining epidemiology?

1. Describing data: Numbers

Listen and choose the correct answer. Challenge: where needed, can you provide the unit and its notation?

1. What is the dosage of fluoride per kilogram of body weight?

a) 0.166

b) 0.16

c) 0.616

2. What was the sensitivity of the assay?

a) 0.02

b) 2.0

c) 0.2

3. What is the output impedance at the 5V end?

a) 0.02

b) 0.20

c) 0.92

4. What amperage of flex is used?

a) 0.6

b) 6

c) 6.8

5. What is the temperature below which the superconductor conducts electricity with no resistance

a) 9/10 °

b) 19°

c) 90°

6. What is the enthalpy change when 2 moles of water are formed at a pressure of one atmosphere and a temperature of 298 Kelvin?

a) -517.6

b) -5716

c) -571.6

7. What is the lowest frequency at which young mice squeak when isolated from their mother?

a) 450

b) 45

c) 405

8. What laser pulses were used?

a) 15

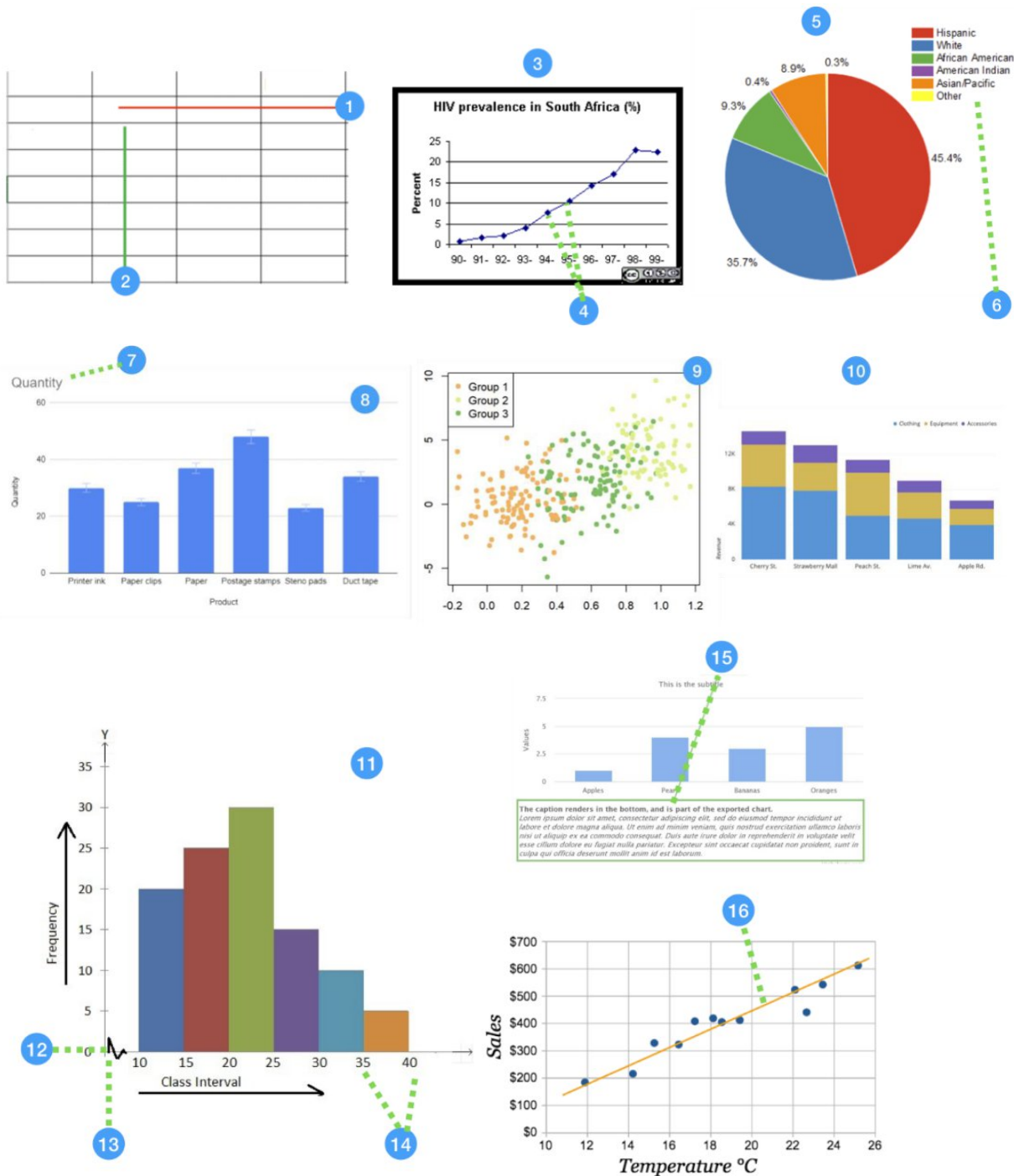
b) 50

c) -50

Listen and write the correct answer. Are there alternate ways of saying that number?

a.	e.	i.
b.	f.	j.
c.	g.	k.
d.	h.	l.

2. Describing data: Charts and Graphs



Which type of chart would be best to visually present the following information?

- The distribution of individuals among age groups
- The relationship between the time spent studying and the grade on the exam
- The proportion of students enrolled in each of the graduate programs on campus

- D. The evolution of a student's English grades over time
- E. Sales to various clients of a range of products

3. Presenting a Study: Air Pollution and Lung Cancer

Match the vocabulary words from the video and their definitions:

- | | |
|--------------------------|--|
| 1. ____ progenitor | a) a type of cell that lines the surfaces of organs and body cavities. |
| 2. ____ epithelial cells | b) highly convincing, persuasive, and strong. |
| 3. ____ burden | c) precursor of something |
| 4. ____ unravel | d) a puzzling question or problem that is difficult to resolve. |
| 5. ____ compelling | e) the lineage of cells in an organism that give rise to gametes |
| 6. ____ conundrum | f) a heavy load or responsibility |
| 7. ____ germline | g) to solve or explain something complex or mysterious, often by systematically examining and analyzing it |

Discuss the following terms. What do they mean?

a carcinogen – a never-smoker – correlation vs. causation – particulate matter (PM 2.5) – a stem cell

What factors are widely believed to contribute to lung cancer?

Watch the video and answer the following questions:

1. What were the areas and target population for the study?
2. What is the significance of the correlation between rising PM 2.5 levels and EGFR mutant lung cancer?
3. What is the difference between tumor initiation and tumor promotion? Which is a concern with EGFR and KRAS mutations?
5. Are these findings a “silver bullet”? What implications do they have for potential cancer prevention strategies?

4. Cancer Town (The Guardian,UK)

The timeline: what happened in Reserve, LA during each of the periods below?

In the 1960s :

In 2015 :

In 2017 :

Complete the missing numbers or say what they represent.

	minutes to Reserve, Louisiana from New Orleans
	risk of cancer from toxic air in Reserve, LA
	average national risk of cancer from toxic air
	the current value of houses in the area (as ratio of their former value)
	the amount of chloroprene per cubic meter considered safe by the EPA*
nearly 50	
\$30 million	
85 to 90 percent	amount by which the thermal oxidizer is expected to reduce emissions

*EPA: Environmental Protection Administration, the US's government agency for the environment

Fill in the blanks

Local politicians have _____ ignored and minimized residents' _____, but little by little, their movement is growing, like here at the Tchoupitoulas chapel, which has become a _____ for the campaign. "People are dying these horrible deaths, _____ these maladies; it's _____. This is really serious. They never _____ said, 'Yeah, of course, there's a simple solution; it is to stop that _____ from killing us.'"

What are statistics used for in this video? Are they convincing? Explain your opinion.