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A partial answer key for problems framed in **bold** is provided on the back page. Please check those answers. We will continue the practice of providing answers for bold-framed problems in future Introductory Exercises. Your teacher will be grading the work you show in those problems and across the assignment.

1. The U.S. Census Bureau defines a **household** as all of the people who occupy a housing unit as their usual place of residence. The number of households is not equal to the population because multiple people may live in the same housing unit.

82.1% of Cincinnati households have a computer. If 111,804 households in Cincinnati have a computer, how many households are there altogether in Cincinnati? Show your work. Round to the nearest whole number. (1 pt)

All students at a local high school are members of the freshman, sophomore, junior, or senior classes. Academic advisors pay close attention to the academic performance of both freshmen (9th graders who are just beginning high school) and seniors (12th graders who are about to graduate).

	Enrollment	Percentage of students earning honors	Percentage of students on academic watch
		<i>GPA of 3.5 or higher</i>	<i>GPA of 1.5 or lower</i>
All Students	854	11	14
Freshmen	223	13	10
Seniors	198	8	17

2. According to the chart, 11% of all students at this high school have GPAs of 3.5 or higher and 14% have GPAs of 1.5 or lower. What percentage of all students have GPAs between 1.5 and 3.5? Show your work. Do not round your result. (1 pt)

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All students at a local high school are members of the freshman, sophomore, junior, or senior classes. Academic advisors pay close attention to the academic performance of both freshmen (9th graders who are just beginning high school) and seniors (12th graders who are about to graduate).

Grade	Enrollment	Percentage of students earning honors	Percentage of students on academic watch
		<i>GPA of 3.5 or higher</i>	<i>GPA of 1.5 or lower</i>
All Students	854	11	14
Freshmen	223	13	10
Seniors	198	8	17

3. According to the chart, there are 223 freshmen in this school of 854 students. What percentage of students at this high school belong to classes other than the freshman class? Show your work. Round your result to one decimal place. (1 pt)

4. According to the chart, 17% of the 198 seniors are on academic watch and so are 10% of the 223 freshmen.

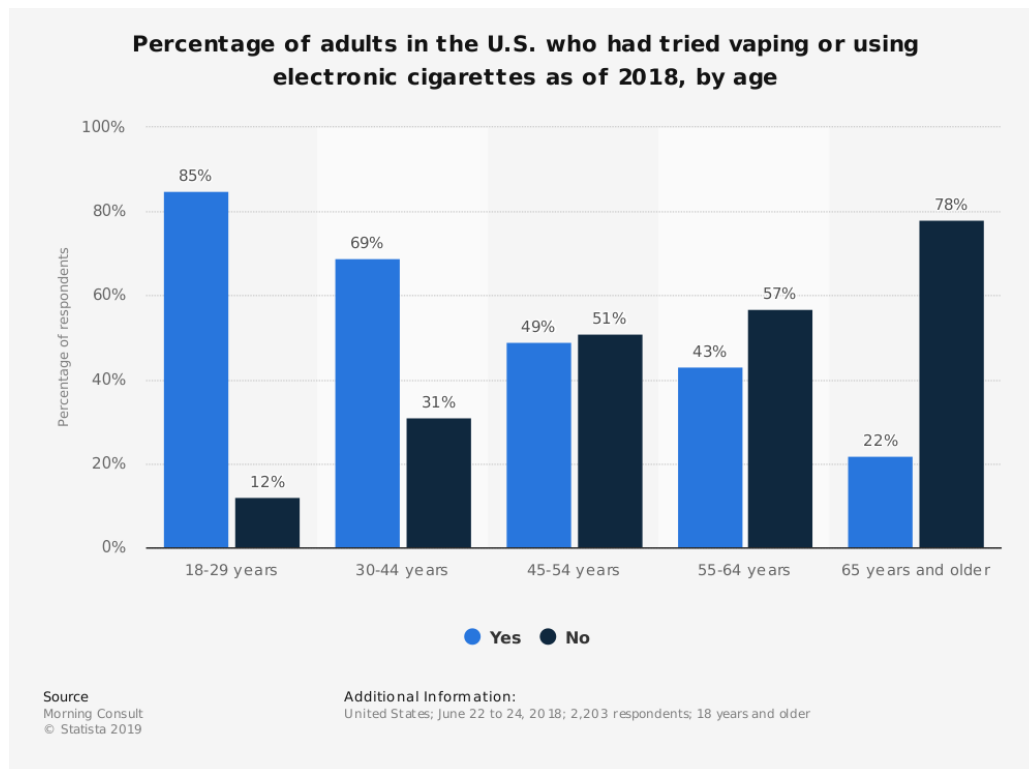
(a) How many seniors are on academic watch? Show your work. Round to the nearest whole number. (0.5 pt)

(b) How many freshmen are on academic watch? Show your work. Round to the nearest whole number. (0.5 pt)

(c) How many more seniors are on academic watch than freshman? Show your work. (1 pt)

5. How many more freshmen are earning honors than seniors? Show your work. (1 pt)

Refer to the graphic to answer the following questions.



6. The double bar graph above displays both the percentage of people who *have* tried vaping/electronic cigarettes in each age group and the percentage who *have not*. For example, 85% of people who are 18-29 years old *have* tried vaping or electronic cigarettes. 12% of people who are 18-29 years old *have not* tried vaping or electronic cigarettes.

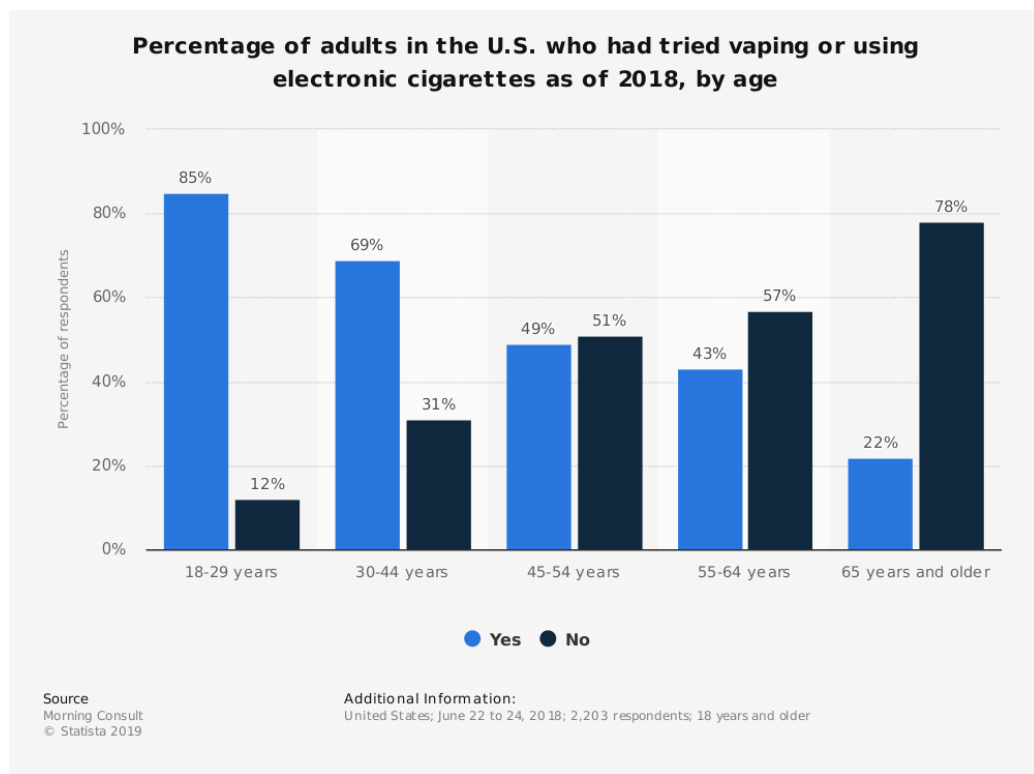
If we focus on the “yes” bars (on the left of each pair of bars) and look at the graph from left to right, the following trend can be observed regarding those who *have* tried vaping or e-cigarettes.:

As the age of respondents increases, the percentage of people who *have* tried vaping or e-cigarettes decreases.

Focus on the “no” bars (on the right of each pair of bars) and look at the graph from left to right. Write a complete sentence to describe the trend that you observe regarding those who *have not* tried vaping or e-cigarettes.

(1 pt)

(continued from previous page) Refer to the graphic to answer the following questions.



7. The U.S. population in 2018 was estimated to be 327,200,000. Within that population, there were 30,357,000 people who were 18-29 years old and 52,431,000 people who were 65 years and older.

(a) According to the graphic, 85% of the 30,357,000 people who are 18-29 years old have tried vaping or electronic cigarettes. Approximately how many people ages 18-29 said they have tried vaping or e-cigarettes? Show your work. (1 pt)

(b) Approximately how many people ages 65 and older said they have tried vaping or e-cigarettes? Show your work. (1 pt)

(c) Based on those estimates, how many more people ages 18-29 said they had tried vaping or e-cigarettes than people ages 65 and older? Show your work. (1 pt)

Core Concepts 2 – Introductory Exercises – Fractions, Percentages, Decimals

Partial key:

- 1) There are 136,180 households in Cincinnati.
- 2) 75% have GPAs between 1.5 and 3.5
- 3) 73.9% belong to classes other than the freshman class
- 4) **a.)** 34 seniors are on academic watch **b.)** 22 freshmen are on academic watch **c.)** There are 12 more seniors than freshmen on academic watch.
- 7) 25,803,450 people ages 18-29 have tried vaping or e-cigarettes.

Vaping and Electronic Cigarette Graphic on pages 3 and 4 retrieved on 8/14/2019 from
<https://www.statista.com/statistics/882611/vaping-and-electronic-cigarette-use-us-by-age/>