

**Exercise 1: (5 minutes)**

For each of the fractions shown below, indicate whether it is a ratio, a proportion, a rate, or none of the three.

- A. Ratio
- B. Proportion
- C. Rate
- D. None of the above

\_\_\_\_ 1.

$$\frac{\text{number of women in region A who died from stroke in 2010}}{\text{number of women in region A who died in 2010}}$$

\_\_\_\_ 2.

$$\frac{\text{number of women in region A who died from stroke in 2010}}{\text{estimated number of women living in region A on July 1, 2010}}$$

\_\_\_\_ 3.

$$\frac{\text{number of women in region A who died from stroke in 2010}}{\text{number of women in region A who died from cancer in 2010}}$$

Name \_\_\_\_\_ ID \_\_\_\_\_

**Exercise 2: (5 minutes)**

Among 13,963,753 males and 14,272,325 females, there were 20,734 cases of prostate cancer and 19,107 cases of female breast cancer. Calculate the incidence rates of prostate cancer and female breast cancer. Express your answers using an appropriate multiplier.

**Exercise 3: (10 minutes)**

In 2015, a total of 15,555 homicide deaths occurred among males and 4,753 homicide deaths occurred among females. The estimated 2001 midyear populations for males and females were 139,813,000 and 144,984,000, respectively.

1. Calculate the homicide -related death rates for males and for females.
2. What type(s) of mortality rates did you calculate in Question 1?
3. Calculate the ratio of homicide -mortality rates for males compared to females.
4. Interpret the rate you calculated in Question 3 as if you were presenting information to a policymaker.

**Exercise 4: (5 minutes)**

Using the data in Table 1, calculate the missing proportionate mortalities for persons aged 25–44 years for diseases of the heart and assaults (homicide).

Table 1. Number, Proportion (Percentage), and Ranking of Deaths for Leading Causes of Death, All Ages and 25–44 Year Age Group — United States, 2003

	All ages			Ages 25–44 Years		
	Number	Percentage	Rank	Number	Percentage	Rank
All causes	2,443,930	100		128,924	100	
Diseases of heart	684,462	28	1	16,283	_____	3
Malignant neoplasms	554,643	22.7	2	19,041	14.8	2
Cerebrovascular_disease	157,803	6.5	3	3,004	2.3	8
Chronic lower respiratory_diseases	126,128	5.2	4	401	0.3	* _
Accidents (unintentional injuries)	105,695	4.3	5	27,844	21.6	1
Diabetes mellitus	73,965	3	6	2,662	2.1	9
Influenza & pneumonia	64,847	2.6	7	1,337	1	10
Alzheimer's_disease	63,343	2.6	8	0	0	* _
Nephritis, nephrotic syndrome, nephrosis	33,615	1.4	9	305	0.2	* _
Septicemia	34,243	1.4	10	328	0.2	* _
Intentional self-harm (suicide)	30,642	1.3	11	11,251	8.7	4
Chronic liver_disease and cirrhosis	27,201	1.1	12	3,288	2.6	7
Assault (homicide)	17,096	0.7	13	7,367	_____	5
HIV_disease	13,544	0.5	* _	6,879	5.3	6
All_other	456,703	18.7		29,480	22.9	

\* Not among top ranked causes

Name \_\_\_\_\_ ID \_\_\_\_\_

**Exercise 5: (5 minutes)**

In 2009, 6 of 18 infected patients with H5N1 avian influenza died. What is the case fatality ratio (CFR)? What might cause this CFR to be overestimated?

**Exercise 6: (5 minutes)**

In a study concerned with the possible effects of air pollution on the development of chronic bronchitis, the following data were obtained. A population of 9,000 men aged 45 years was examined in January 2010. Of these, 6,000 lived in areas where they were exposed to air pollution and 3,000 did not. At this examination, 90 cases of chronic bronchitis were discovered, 60 among those exposed to air pollution. All the men initially examined who did not have chronic bronchitis were available for subsequent repeated examinations during the next 5 years. These examinations revealed 268 new cases of chronic bronchitis in the total group, with 30 among those unexposed to air pollution.

1. The prevalence of chronic bronchitis in January 2010:
  - a. .05%
  - b. 1%
  - c. 2%
  - d. 3%
  
2. The incidence rate (per 1,000) of chronic bronchitis for the 5 years among those exposed to air pollution:
  - a. 39.7
  - b. 30.1
  - c. 10.0
  - d. 10.1
  - e. 40.1
  
3. The incidence rate (per 1,000) of chronic bronchitis for the 5 years among those unexposed to air pollution:
  - a. 39.7
  - b. 30.0
  - c. 10.0
  - d. 10.1
  - e. 40.1
  
4. The incidence rate (per 1,000) of chronic bronchitis for the 5 years in the total population:
  - a. 39.7
  - b. 30.1
  - c. 10.0
  - d. 10.1
  - e. 40.1

Name \_\_\_\_\_ ID \_\_\_\_\_