

MATH 1030-004, Exam 1 Sample

Spring 2014

1. Of the 50 international students, 30 can speak Spanish, 20 can speak French, and 15 can speak Dutch. There are 15 students that can speak Spanish only, and there are 3 that can speak Spanish and Dutch only. 7 students can speak French and Spanish only, and 5 can speak French and Dutch only.
 - (a) How many students can speak all three languages?

 - (b) How many cannot speak any of the three languages?

6. The number of traffic accidents in some large city dropped from 80,500 in 2004 to 62,600 in 2014. Find the absolute and relative (percentage) change. (Express the relative change in %.)

7. Suppose you want to save \$22,000 in 10 years. How much should you deposit daily to achieve this, if the bank offers 3.5% APR, compounded daily?

(b.) How much of the financial value comes from actual deposits, and how much from interest?

8. In track and field, Usain Bolt is the world record holder in a 200 meter race with the result of 19.19 seconds. What is his average speed in miles per hour? ($1 \text{ km} = 1000 \text{ m}$, $1 \text{ mi} = 1.61 \text{ km}$.)

9. There are approximately 1 million suicides worldwide in a year. Express this quantity in suicides per minute.

10. A swimming pool is 125 feet long, 95 feet wide, and 9 feet deep.

(a) What is the volume of the pool in cubic feet?

(b) What is its volume in cubic meters? ($1 \text{ m} = 3.28 \text{ ft}$)