Math TODAY™
Student Edition

USA TODAY

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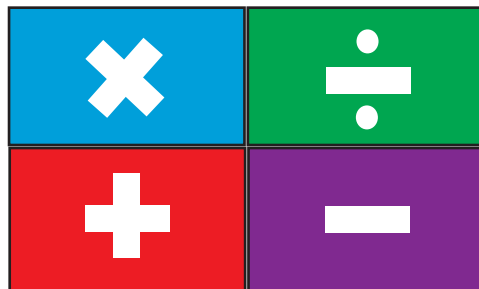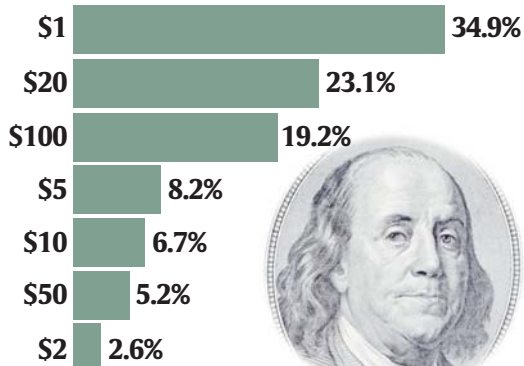
The New Color of Money

USA TODAY Snapshots®

USA money in circulation
About 22 billion bills were circulating as of Dec. 31, 2001. Percentage of bills:

- **$1** — 34.9%
- **$20** — 23.1%
- **$100** — 19.2%
- **$5** — 8.2%
- **$10** — 6.7%
- **$50** — 5.2%
- **$2** — 2.6%

Source: Federal Reserve   By Sarah Renner and Quin Tian, USA TODAY

Focus Questions:

- According to the USA TODAY Snapshot® "USA money in circulation," about how many $20 bills were in circulation as of December 31, 2001?

- What would be the height (measured in miles) of a single stack of all the $20 bills?

- What is the minimum volume of a room that could store all of the $20 bills in circulation at one time?

Activity Overview:

You will be using the information from the USA TODAY Snapshot® "USA money in circulation" to determine the number of $20 bills that were in circulation as of December 31, 2001. You will express the number of $20 bills in decimal and scientific notation and determine how high this stack of bills would reach. You will determine the minimum volume of a room that could store at one time all of the $20 bills in circulation.

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Procedure:

Step 1

Read the USA TODAY Snapshot "USA money in circulation" and find the total number of bills that were in circulation and the percentage that were $20 bills. Determine the number of $20 bills that were in circulation and express your answer in decimal and scientific notation to two significant digits.

Decimal notation _____

Scientific notation _____

Step 2

The U.S. Bureau of Engraving and Printing states that existing currency measures 2.61 inches wide by 6.14 inches long and is 0.0043 inches thick. To the nearest whole bill, how many bills would be needed to make a stack one inch thick? _____

Step 3

How many inches tall would a stack be if it contained all the $20 bills in circulation? Express your answer in scientific notation to two significant digits of accuracy. _____

Select the Science Tools APP from the APPS menu. Choose 2:UNIT CONVERTER and the Length Screen Options. Enter the number of inches tall that you found the stack of $20 bills would be. Convert your answer to miles as the unit of measure. Show your answer in decimal and scientific notation.

_____   _____

Step 4

Switch to the Volume Screen Options and find the number of cubic inches in 1 cubic foot. _____

Find the volume of the rectangular solid formed by a single $20 bill using the dimensions listed in Step 2. _____

Use this value to find the minimum volume in cubic inches of a room that could store, at one time, all of the $20 bills in circulation?

_____

Use the Unit Converter to express your answer in cubic feet.

_____

Data Source:

Federal Reserve

Materials:

- TI-83 Plus or TI-83 Plus Silver Edition

Additional Information:

- **The New Color of Money Program**
  The USA TODAY Charitable Foundation, in collaboration with the Bureau of Engraving and Printing and the Federal Reserve System, has developed a range of interactive educational activities to raise awareness of the newly redesigned $20 note. Find additional information at: www.moneyfactory.com/new-money and www.usatodayfoundation.org.

- Bureau of Engraving and Printing www.moneyfactory.com

- USATODAY.com (Money) www.usatoday.com

- USA TODAY Education The New Color of Money www.usatoday.com/educate/newmoney/index.htm