

Name: _____

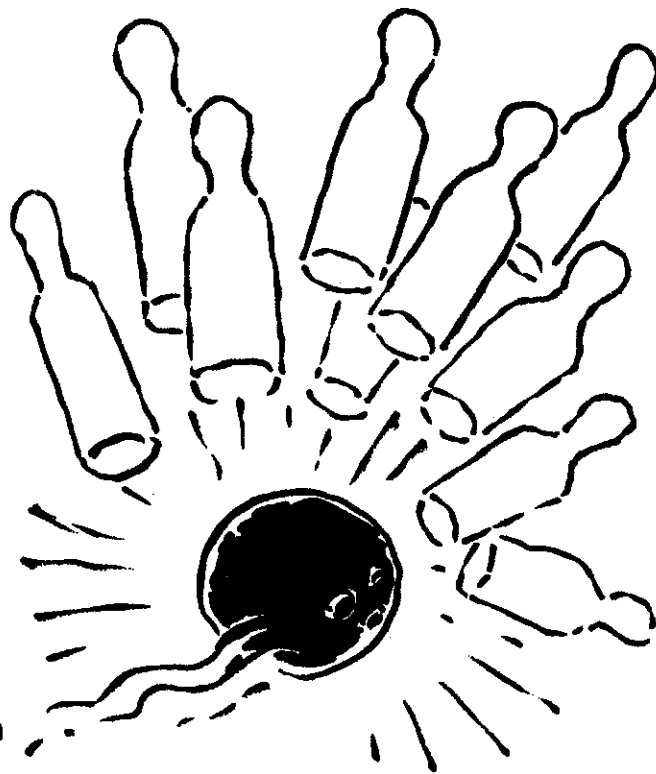
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Know Your Bowling Score!

In bowling, you throw 2 balls in each frame, except when you get a *strike*. A *strike* occurs when you knock down all 10 pins on the first throw.

In frame 1 of the game below, you knocked down 6 pins on the first throw and 3 pins on the second throw, so your score for frame 1 is **9**. In frame 2, you knocked down 8 pins on the first throw and 0 pins (shown by the —) on the second throw. Your score in frame 2 is $9 + 8$, or **17**.

In frame 3 you knocked down 5 pins on the first throw and the rest of the pins on the second throw. This is called a *spare* (shown by the /). A *spare* counts for 10 pins, plus the number of pins knocked down with the *first* ball in the next frame. Since you knocked down 4 pins on the first throw in frame 4, your score for frame 3 is $17 + 10 + 4$, or **31**.



1. Complete the scoring for the game below.

1	2	3	4	5	6	7	8	9	10
6 3	8 —	5 /	4 5	6 /	9 —	— /	2 6	7 /	5 4
9	17	31							

A *strike* (shown by an X) counts for 10 pins, plus the number of pins you knock down with the next *two* balls. Your score for frame 2 in the game below is $9 + 10 + 7 + 2$, or **28**.

2. Complete the scoring for the game below. Note that when you get a spare in the tenth frame, you get one extra throw.

1	2	3	4	5	6	7	8	9	10
9 —	— X	7 2	6 /	9 —	— X	5 4	— /	— X	5 / 9
9	28								

Know Your Bowling Score! (continued)

In frame 2 of the game below, you got a strike. On the next two throws you got another strike (in frame 3) and 4 pins (first throw in frame 4). So your score for frame 2 is $8 + 10 + 10 + 4$, or **32**. Your score for frame 3 is $32 + 10 + 4 + 5$, or **51**.

3. Complete the scoring for the game below. Note that when you get a strike in the tenth frame, you get two extra throws.

1	2	3	4	5	6	7	8	9	10
8 / -	X	X	4 5	6 /	X	X	3 5	1 /	X 3 4
8	32	51							

Score both of these games.

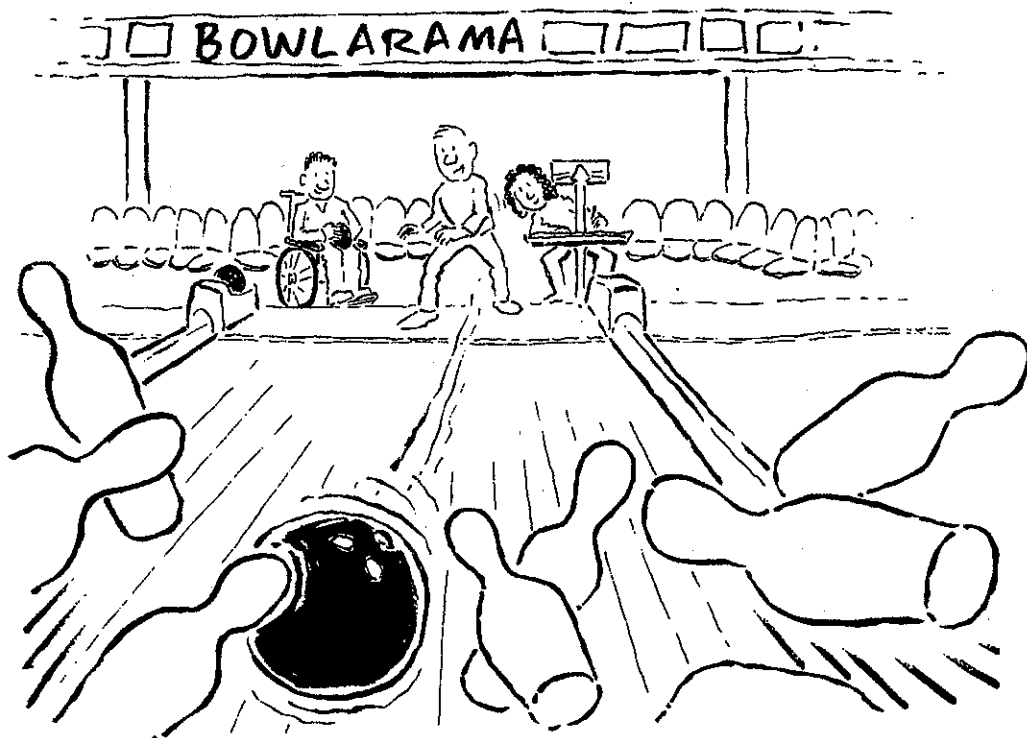
4.

1	2	3	4	5	6	7	8	9	10
2 /	9 -	X	X	7 /	- 9	5 /	X	X	X 5 2

5.

1	2	3	4	5	6	7	8	9	10
X	X	X	6 3	X	- /	5 4	X	X	X X X X

6. What is the highest possible final score you can get in a game of bowling? _____



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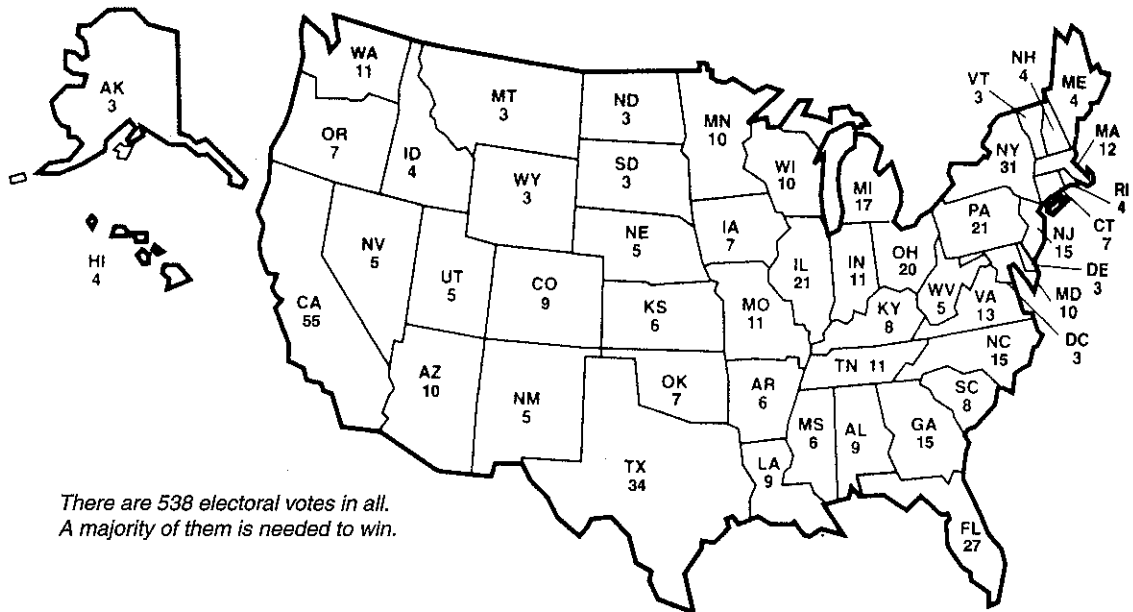
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Presidential Playing Field

The president of the United States is elected by the *electoral college*. States with large populations have more electoral votes than states with small populations.

The candidate who receives the greatest number of popular votes in a state usually gets *all* of the state's electoral votes. To become president, a candidate must receive a *majority* (more than half) of the electoral votes. Since 1964 (when Washington, D.C., was added to the electoral college), the total number of electoral votes has been 538.

Electoral Votes for President
(based on the 2000 Census)



There are 538 electoral votes in all.
A majority of them is needed to win.

1. How many more electoral votes does New York (NY) have than New Jersey (NJ)? _____
2. How many fewer electoral votes does North Carolina (NC) have than Texas (TX)? _____
3. In 1944, California (CA) had only 25 electoral votes. How many electoral votes has it gained since then? _____
4. The six states with the most electoral votes are California, Texas, New York, Florida (FL), Pennsylvania (PA), and Illinois.
 - a. How many electoral votes do these six states have in all? _____
 - b. How many electoral votes do the rest of the 44 states and Washington, D.C., have in all? _____

Presidential Playing Field (continued)

Use this table of selected presidential results to answer Questions 5–9.

Year	Major Candidates	Popular Votes	Electoral Votes
1888	B. Harrison*	5,444,337	233
	G. Cleveland	5,540,050	168
1992	B. Clinton*	44,909,899	370
	G. Bush	39,104,545	168
	R. Perot	19,742,267	0
2000	George W. Bush*	50,456,169	271
	Al Gore	50,996,116	266
	Ralph Nader	2,831,066	0

(One member of the electoral college chose not to cast a vote for any candidate in 2000.)
*Indicates the winner

5. a. In 1888, who had more popular votes? _____
 b. How many more? _____
 c. Who had more electoral votes in 1888? _____
 d. How many more? _____
 e. Who won the 1888 election? _____

6. In which election year were the top two candidates closest in the ...
 a. number of popular votes received? _____
 b. number of electoral votes received? _____

7. Recall that 538 electoral votes are cast, and a *majority* of them are needed to win. What is the *fewest* number of electoral votes a candidate can have and still win: 268, 269, 270, or 271? _____

8. In 1992, a total of 104,426,659 popular votes were cast for all candidates. How many popular votes were *not* cast for Bill Clinton? _____

9. In 2000, suppose Gore (instead of Bush) had won New Hampshire's 4 electoral votes. Would that have given Gore enough electoral votes to win the election? _____

10. In 2004, George W. Bush received 286 electoral votes. John Kerry received 252 electoral votes. Suppose Kerry (instead of Bush) had won Ohio, but Bush (instead of Kerry) had won Hawaii. Which candidate, if any, would have had the majority of the electoral votes? (Refer to the map on page 5.) _____

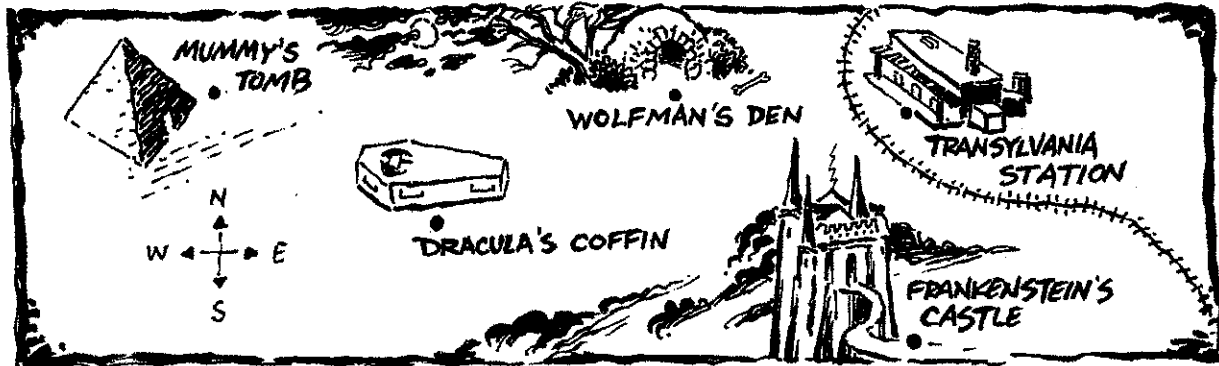
Note: if no candidate gets a majority of the electoral votes, the House of Representatives elects the president from the top three candidates.



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Monster Math



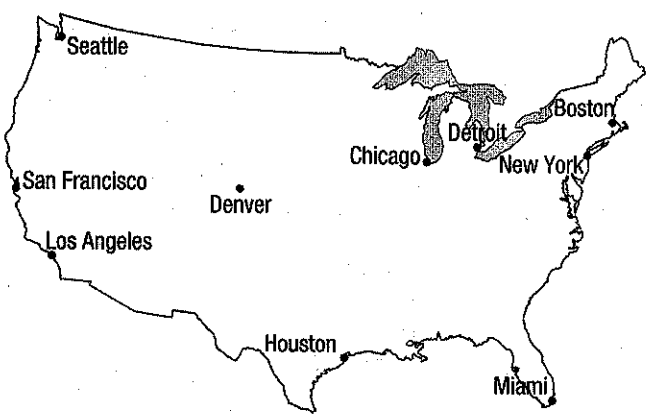
Scale: 1 cm = 80 km

In Questions 1–3, use a centimeter ruler to find (a) each map distance to the nearest tenth centimeter. Then multiply each map distance by 80 to find (b) the land distance in kilometers.

- | | | |
|---|---|---|
| <p>1. Mummy's Tomb to Wolfman's Den</p> <p>a. _____ cm</p> <p>b. _____ km</p> | <p>2. Wolfman's Den to Dracula's Coffin</p> <p>a. _____ cm</p> <p>b. _____ km</p> | <p>3. Mummy's Tomb to Frankenstein's Castle</p> <p>a. _____ cm</p> <p>b. _____ km</p> |
|---|---|---|

4. A monster is on the prowl! To find it, begin at Transylvania Station and go 240 km south. Then go 360 km northwest. Finally, go 280 km southwest. The monster is at _____

5. Find (a) the map distance from Chicago to Denver. Then find (b) the actual distance.
- a. _____ (on map)
- b. _____ (actual)



Scale: 1 cm = 560 km

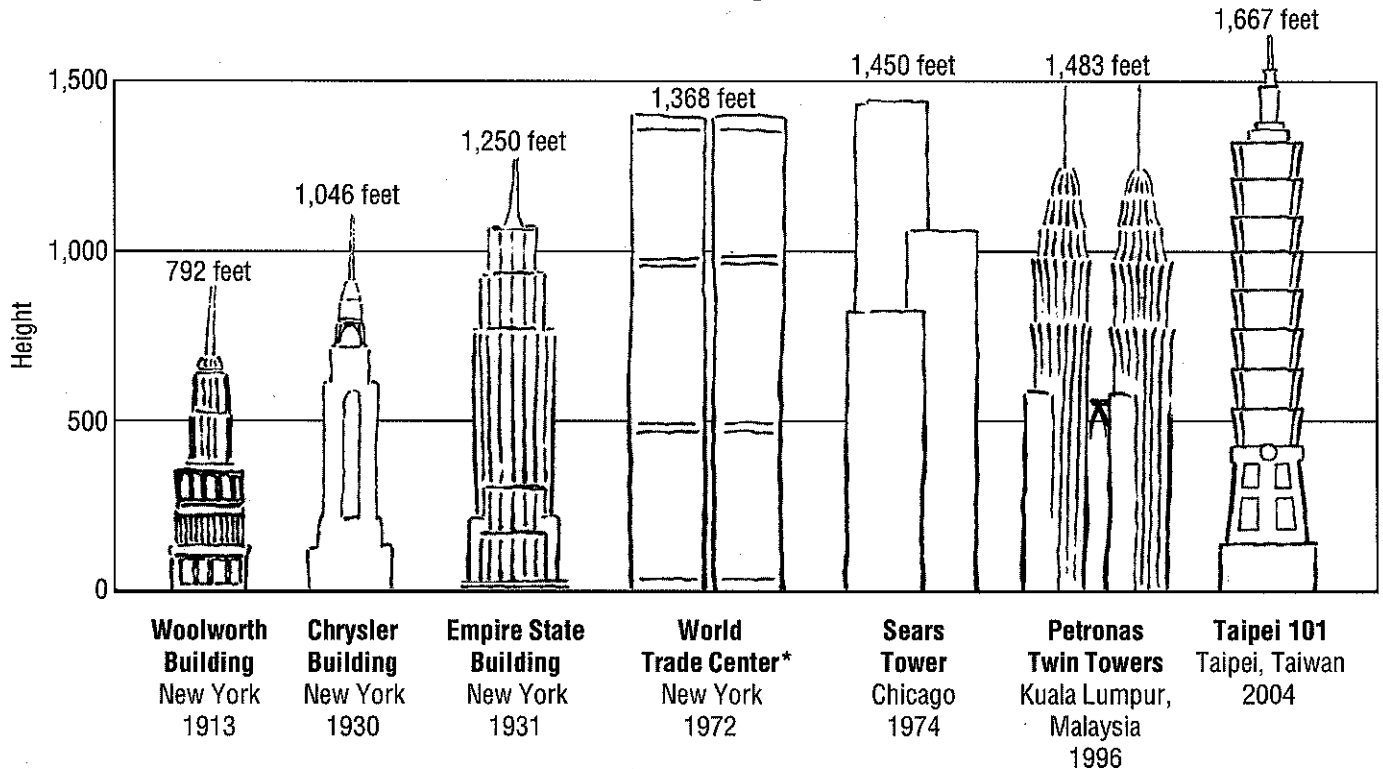
6. What is the actual distance from San Francisco to Houston? _____
7. What is (a) the map distance from Los Angeles to Detroit to New York? What is (b) the actual distance of that trip?
- a. _____ (on map)
- b. _____ (actual)

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Building a Solid Foundation on Percents

The diagram below shows the names and heights of buildings built since 1913 that, when completed, became the *world's tallest building*.

World's Tallest Buildings Since 1913



* The World Trade Center was the world's tallest building from 1972 to 1974. It was destroyed on September 11, 2001.

For Questions 1–3 and 5, find each result to the nearest tenth of a percent.

1. Since 1913, what percent of the seven buildings (or building groupings) that became the world's tallest were in New York? _____
2. What was the *percent increase* in height when ...
 - a. the World Trade Center replaced the Empire State Building as the world's tallest building? _____
 - b. the Petronas Twin Towers replaced the Sears Tower as the world's tallest building? _____
 - c. Taipei 101 replaced the Petronas Twin Towers as the world's tallest building? _____
3. a. After 1913, which building registered the greatest *percent increase* in height when it became the world's tallest building? _____
- b. What was that percent increase in height? _____

Turn Up the Volume

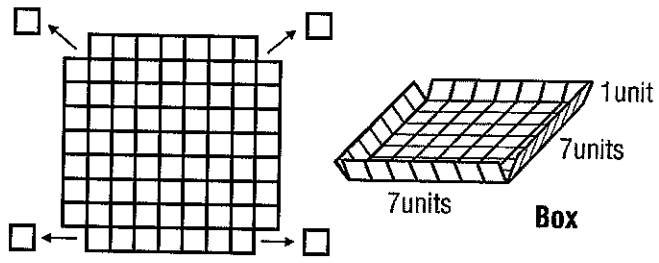


Volume Formulas			
Rectangular Prism (or cube) $V = \ell \times w \times h$ Volume = length x width x height	Square Pyramid $V = \frac{s^2 \times h}{3}$ Volume = (side x side x height) ÷ 3	Cylinder $V = \pi \times r^2 \times h$ Volume = π x radius x radius x height	Cone $V = \frac{\pi \times r^2 \times h}{3}$ Volume = π x (radius x radius x height) ÷ 3

Volume is given in *cubic units*. The symbol for cubic feet is ft³, the symbol for cubic meters is m³, and so on.

You can use grid paper to make a box. Cut squares away from the corners of the paper, and fold the sides to form a box (without a lid).

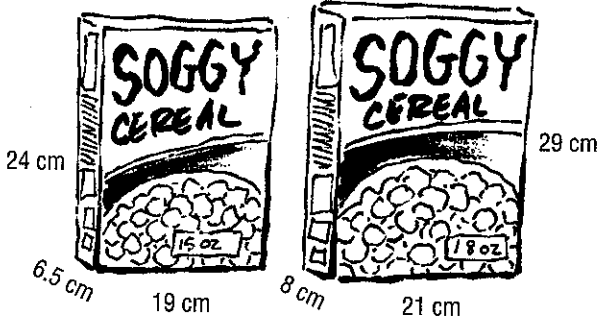
1. a. One square has been cut from each corner of the piece of 9-by-9 grid paper shown at the right. The volume of the resulting box is 7 x 7 x 1, or _____ cubic units.



- b. Suppose a 2-by-2 square is cut from each corner of a 9-by-9 grid. Find the volume of the resulting box. _____
- c. Suppose a 3-by-3 square is cut from each corner of a 9-by-9 grid. Find the volume of the resulting box. _____

2. Gina dug a hole in the shape of a cube. Each side was 5 feet long. Tina dug two cubic holes, each 2.5 feet on a side. Did they dig the same amount of dirt? If not, explain.

3. a. Find the volume of each cereal box shown at the right.
15-oz box _____ 18-oz box _____
- b. Refer to the weight of the cereal in each box. Which box contains more cereal per cubic centimeter of space—and hence, less air? _____



Turn Up the Volume (continued)

- The Pyramid of Khufu, called the "Great Pyramid," has a square base of 720 feet on a side. It had an original height of 481 feet. Find the original volume of the pyramid. _____
- A square pyramid is 6.6 meters long on a side and has a height of 6.6 meters. A cube is 6.6 meters long on a side. How many times as great is the volume of the cube than that of the pyramid? _____

6. Find the volume of the cola can at the right. _____

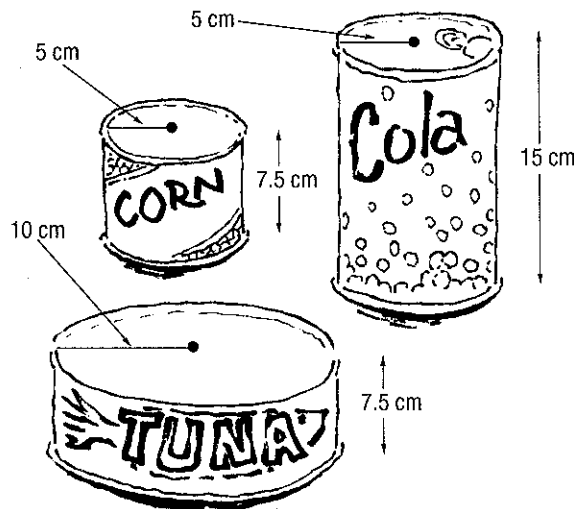
7. Find the volume of the corn can at the right. _____

8. Find the volume of the tuna can at the right. _____

9. Compare the cola can and the corn can. Does doubling the *height* of a can give you twice the volume? _____

10. Compare the tuna can and the corn can. Does doubling the radius of a can give you twice the volume? Explain. _____

11. A cone and a cylinder each have a radius of 2 inches and a height of 3 inches. How many times as great is the volume of the cylinder? _____



U-Scream Ice Cream is packaged as shown.

12. Find the volume of the ice-cream bar at the right. _____

13. Find the volume of the portion of the cylinder that contains ice cream. _____

14. Find the volume of the cone to the nearest tenth cubic centimeter. _____

15. Which of the three gives the most ice cream for your money? _____

