Introduction to Problem Solving & Critical Thinking

Part 13a of
"Electronics and Telecommunications"
A Fairfield University E-Course
Powered by LearnLinc

Sections 13/14 Schedule

Session 13a	**11/05**	**Intro to Problem Solving & Critical Thinking**	Notes
Session 13b	11/10	Fun with Word Problems	Notes
Session 13c	11/12	Fun with Word Problems	Notes
MT7 (Sat,Cheshire)	**11/15**	**CT Mastery Test, Pt 7**	
MT7 Results	11/17		
Session 14a	11/19	Intro to Applied Technical Mathematics	Notes: Binary/Octal/Hex, Powers of 10, Basic Algebra
Session 14b	11/24	DC & AC Motors	Elect1-7: pp. 7-39: 7-69, pp. 7-89: 7-117
Session 14c	11/26	Levers/gears, Torque/HP/RPM	
Quiz 14 Review (Quiz 14 due 12/07)	12/01		
Quiz 14 Results	12/08		
MT8 (Sat,Cheshire)	**12/13**		
MT8 Results	12/15		

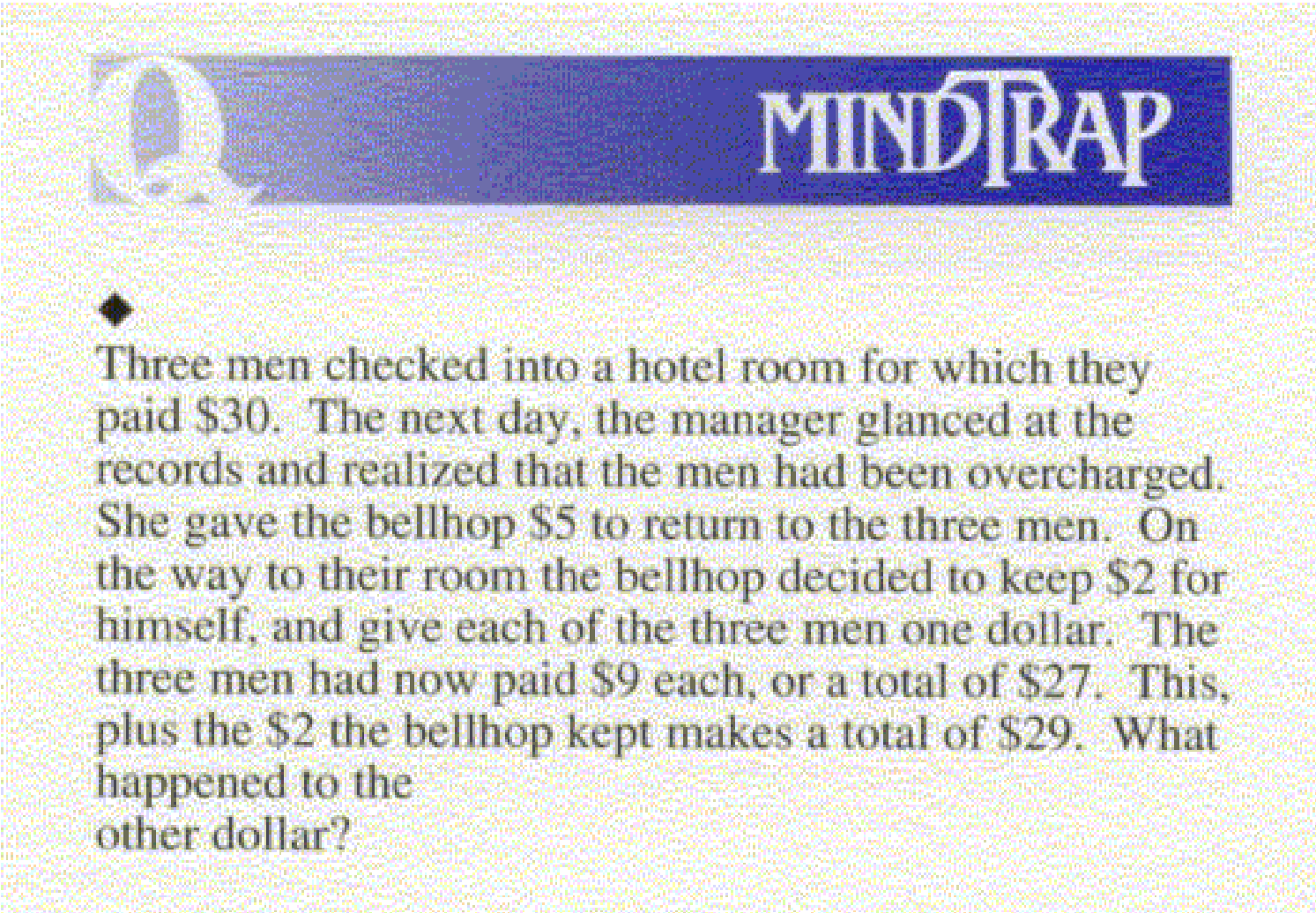
Section 13:
Problem Solving and Critical Thinking

- Word puzzles
- Read carefully
- Use simple logic
- Some algebra (but avoidable)
- No trick questions
- Some general world knowledge
- Some questionable wording
- Explain “why” to give me flexibility

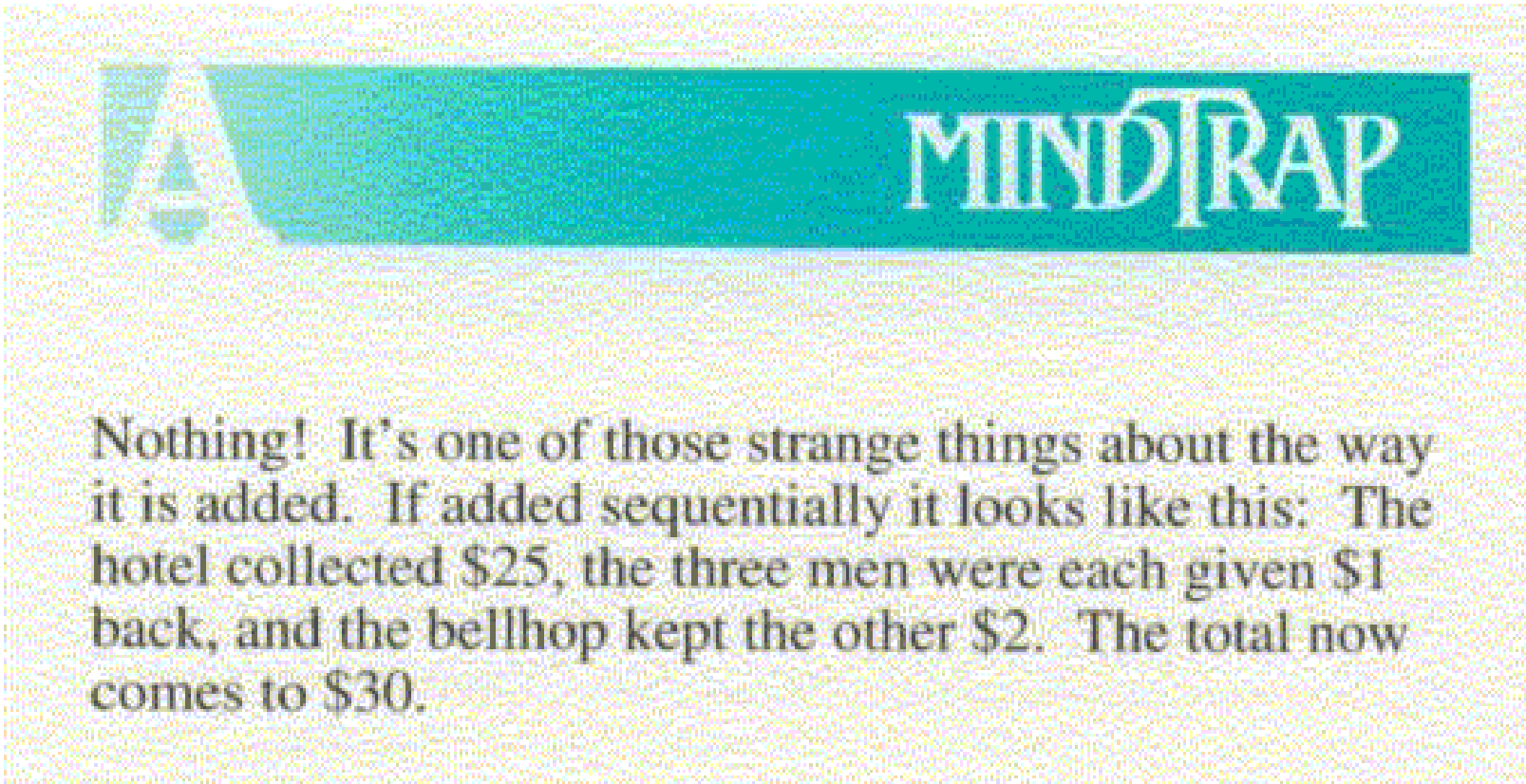
MindTrap

- A word puzzle game from Pressman Toy Corporation.
- Here there are some trick questions (groan)
- Designed to be fun for ages 12 $ up

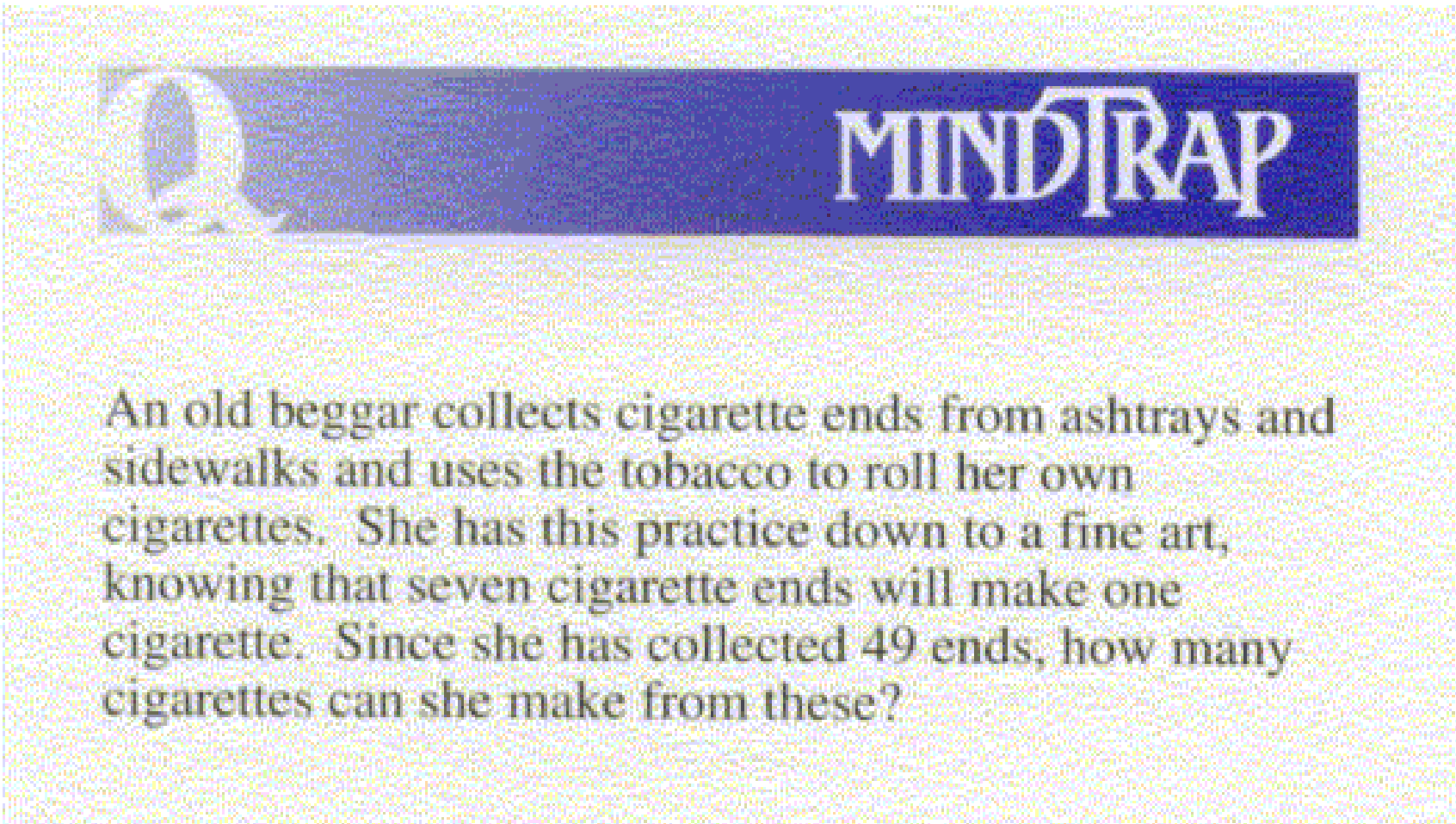
The Bellhop


MINDTRAP
Three men checked into a hotel room for which they paid $30. The next day, the manager glanced at the records and realized that the men had been overcharged. She gave the bellhop $5 to return to the three men. On the way to their room the bellhop decided to keep $2 for himself, and give each of the three men one dollar. The three men had now paid $9 each, or a total of $27. This, plus the $2 the bellhop kept makes a total of $29. What happened to the other dollar?

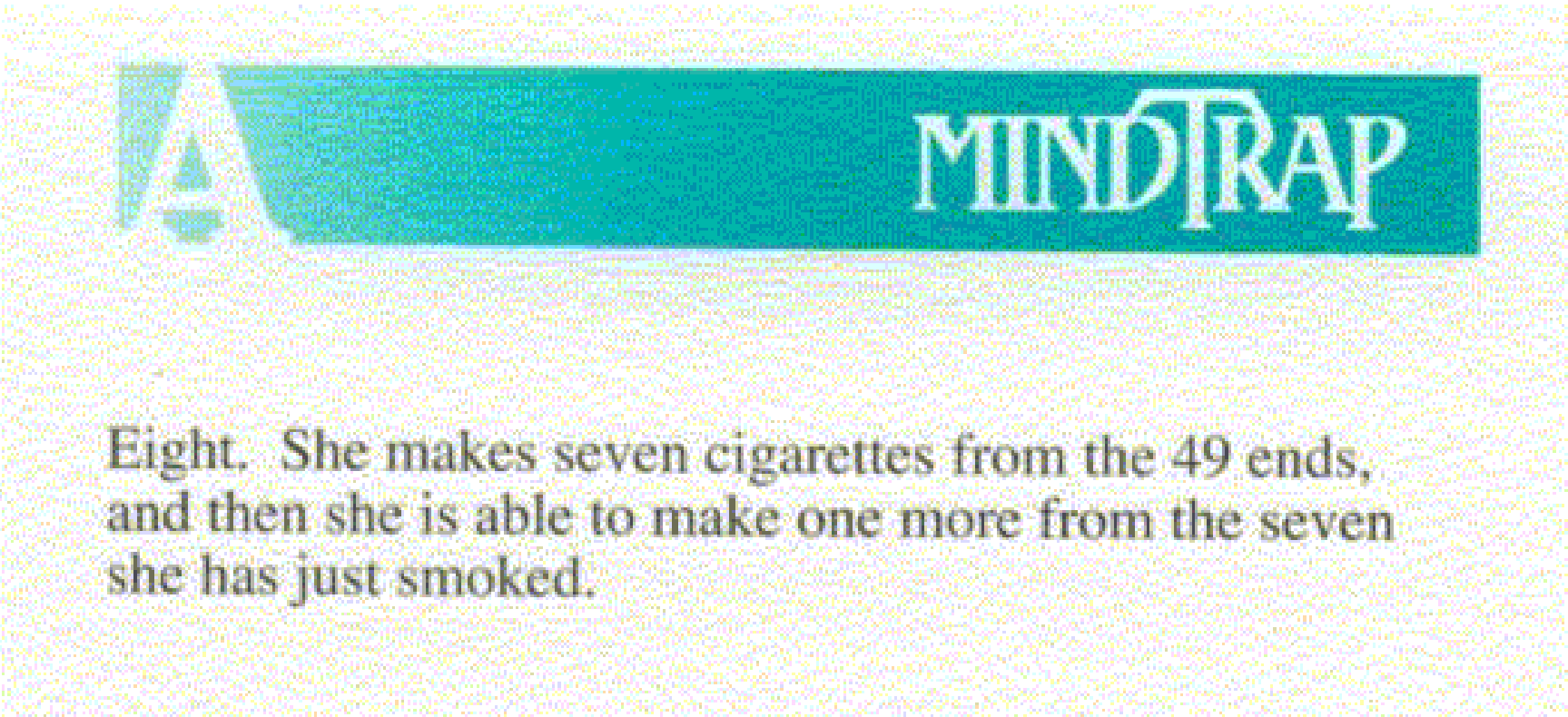
The Bellhop - Answer



Butts


MINDTRAP
An old beggar collects cigarette ends from ashtrays and sidewalks and uses the tobacco to roll her own cigarettes. She has this practice down to a fine art, knowing that seven cigarette ends will make one cigarette. Since she has collected 49 ends, how many cigarettes can she make from these?

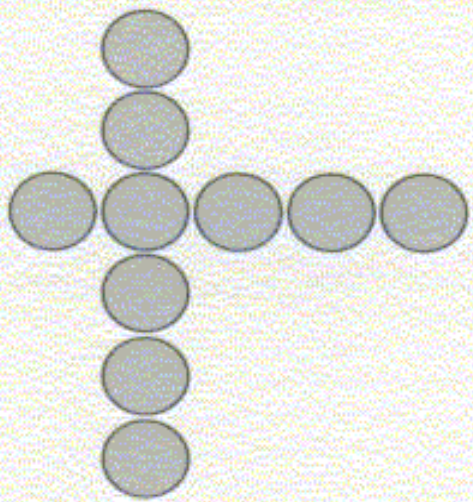
Butts - Answer



Coins

MINDTRAP

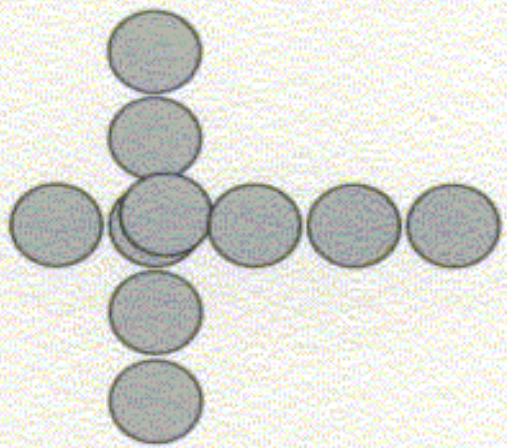
Ten coins are arranged as shown. How can you move just one coin so that when added, either vertically or horizontally, two rows of six coins will be formed?



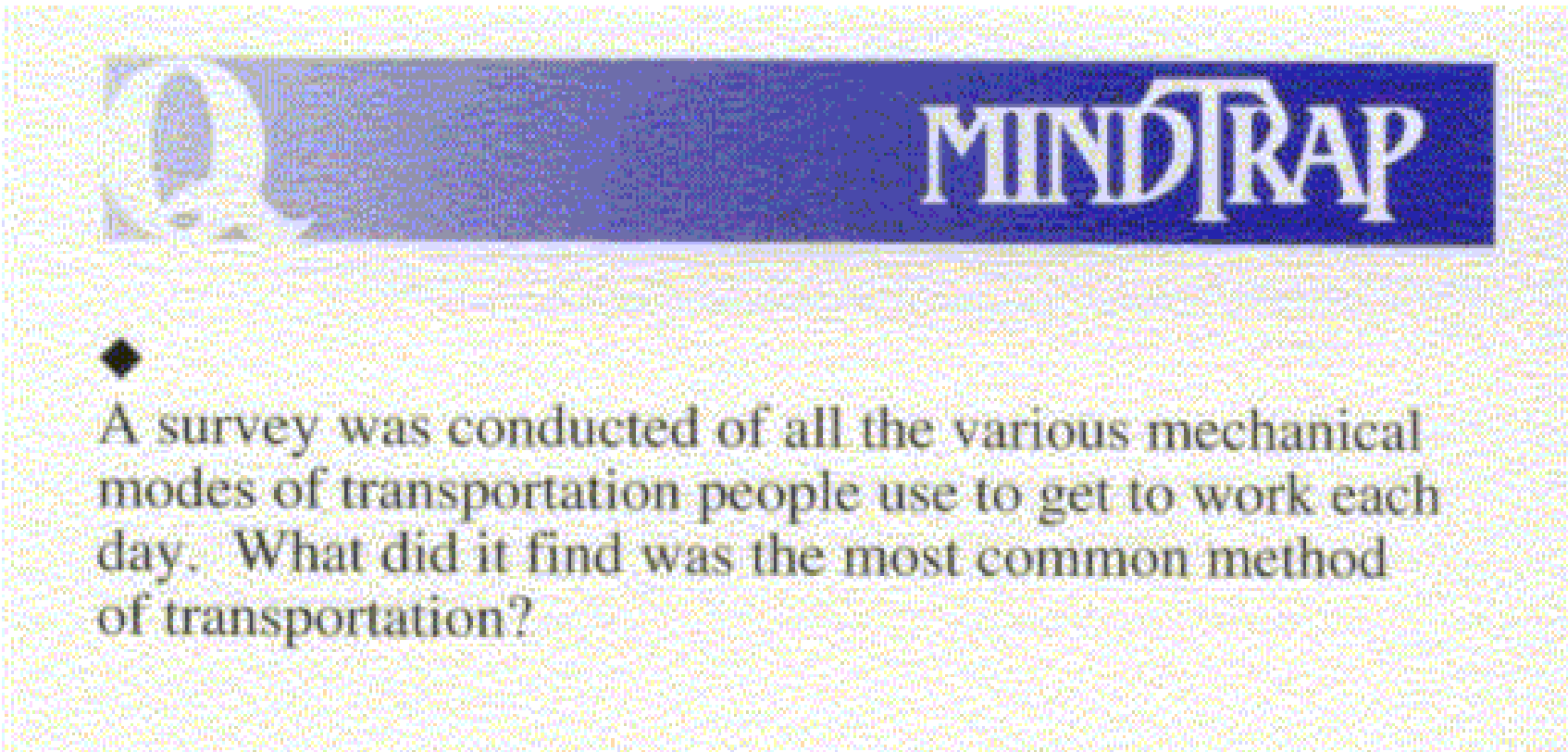
Coins - Answer

MINDTRAP

The solution is to take the bottom verticle coin and place it on top of the coin where the two rows intersect.

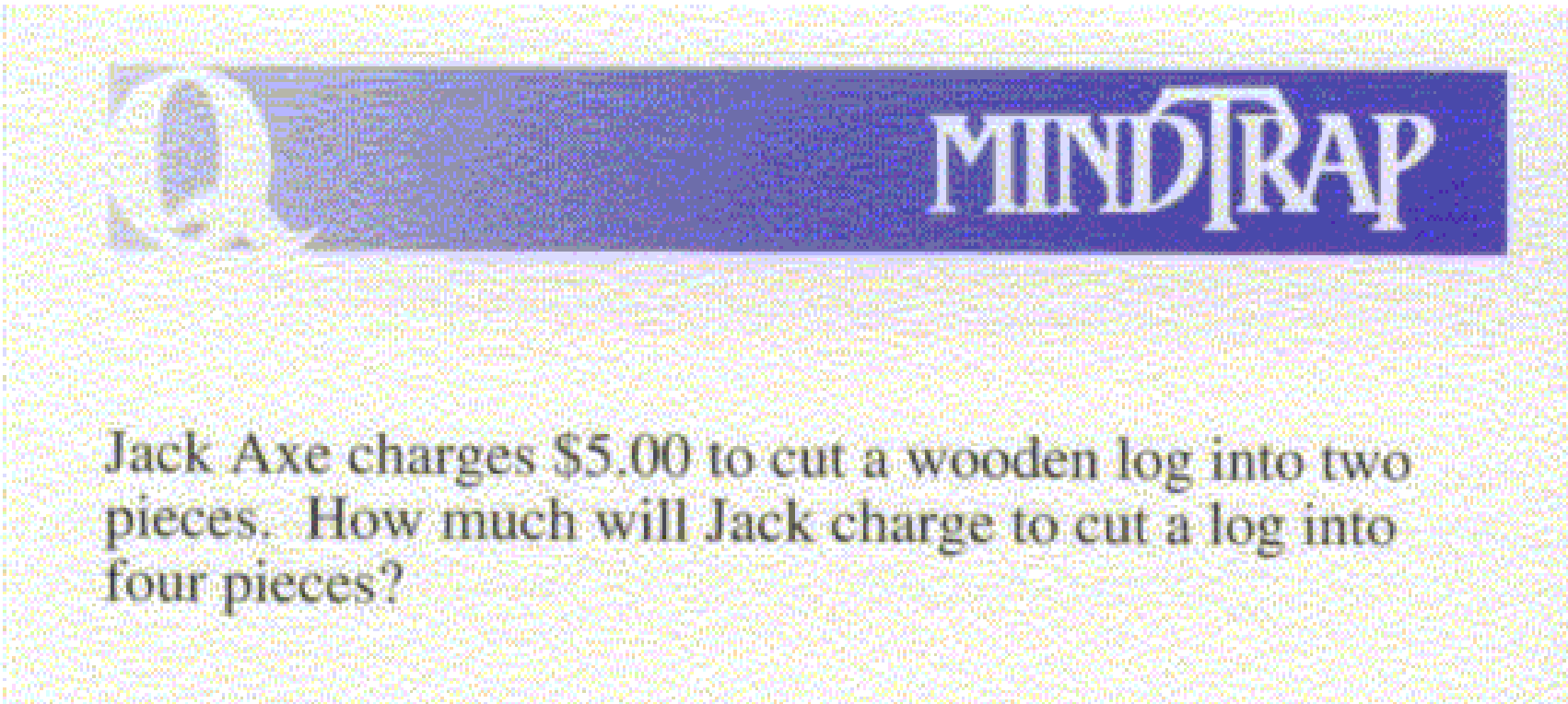


Commuting

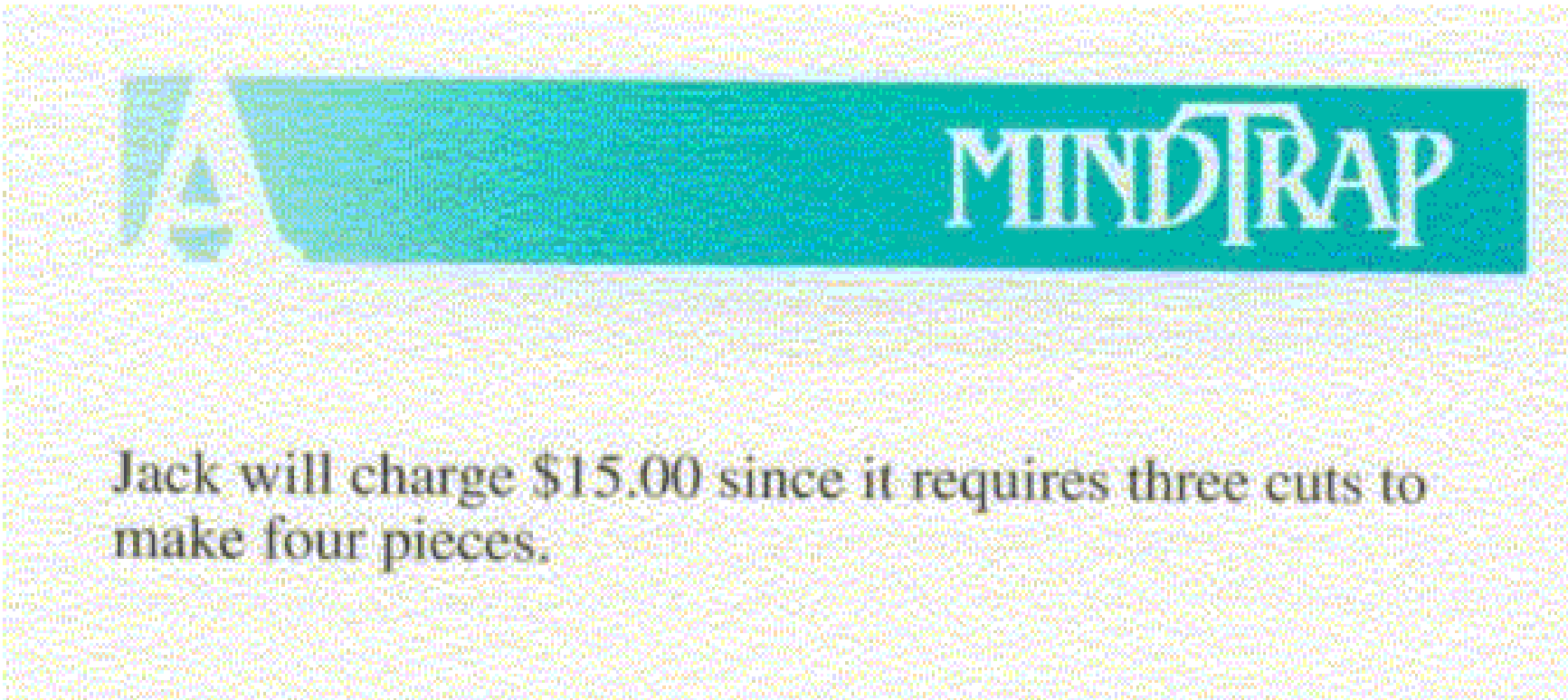

MINDTRAP
A survey was conducted of all the various mechanical modes of transportation people use to get to work each day. What did it find was the most common method of transportation?

Commuting - Answer

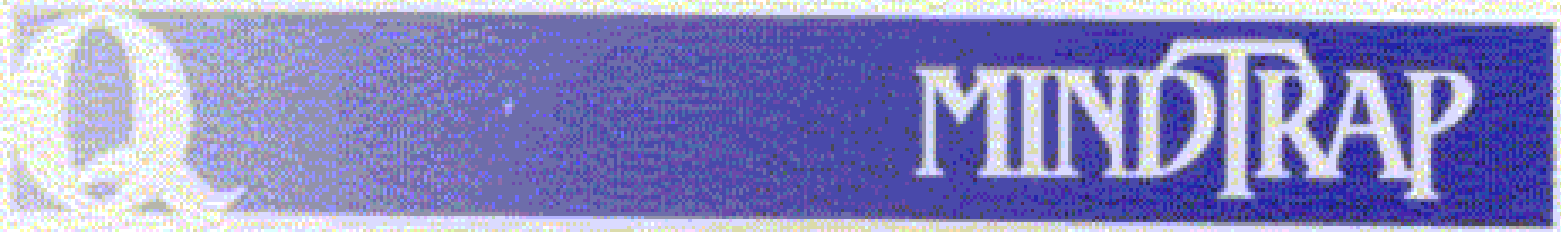
Cuts


MINDTRAP
Jack Axe charges $5.00 to cut a wooden log into two pieces. How much will Jack charge to cut a log into four pieces?

Cuts - Answer

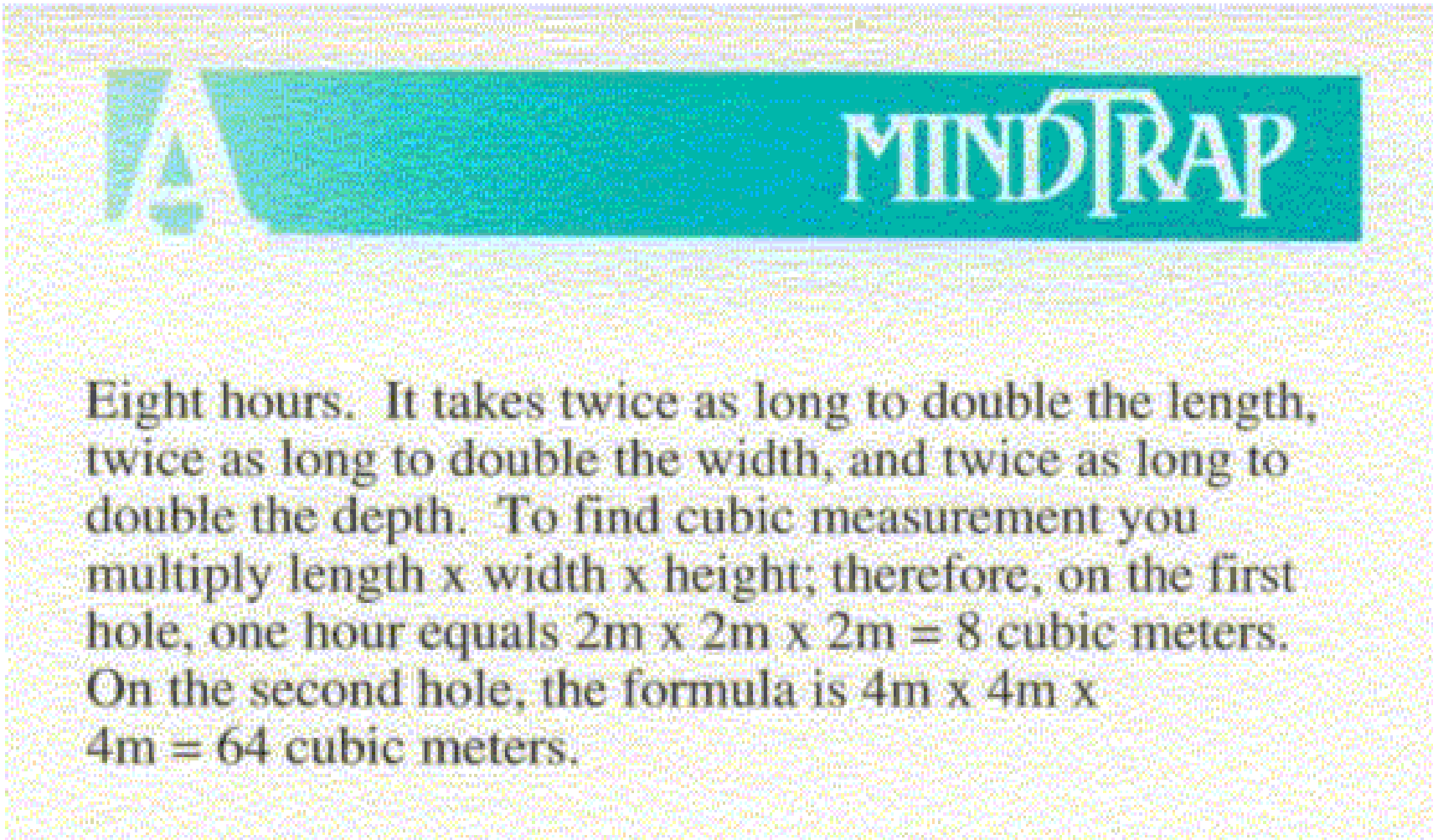

MINDTRAP
Jack will charge $15.00 since it requires three cuts to make four pieces.

Dig

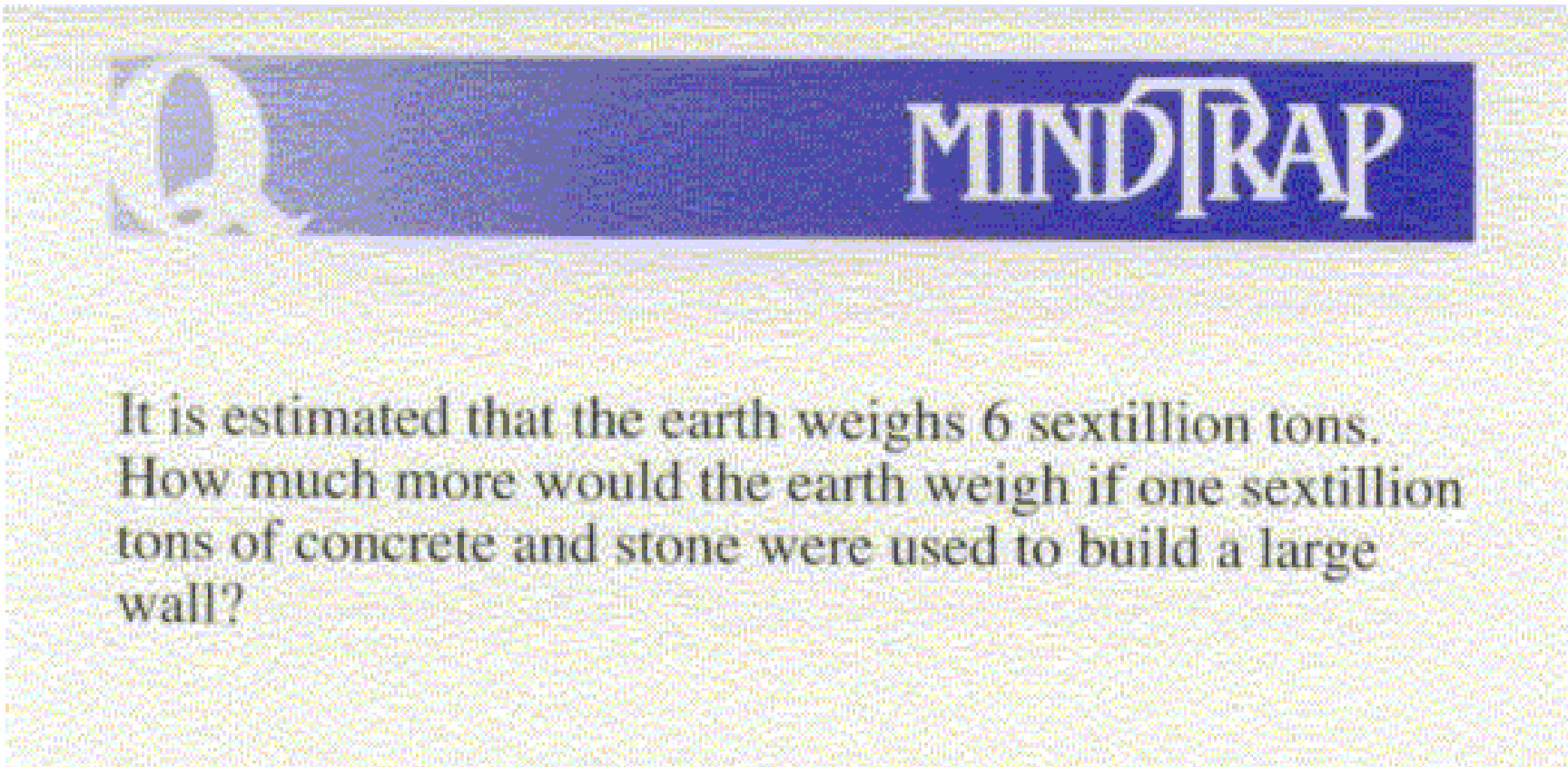


If it takes a man one hour to dig a hole two meters long, two meters wide, and two meters deep, how long would it take the same man to dig a hole four meters long, four meters wide, and four meters deep, assuming he digs at the same rate of speed?

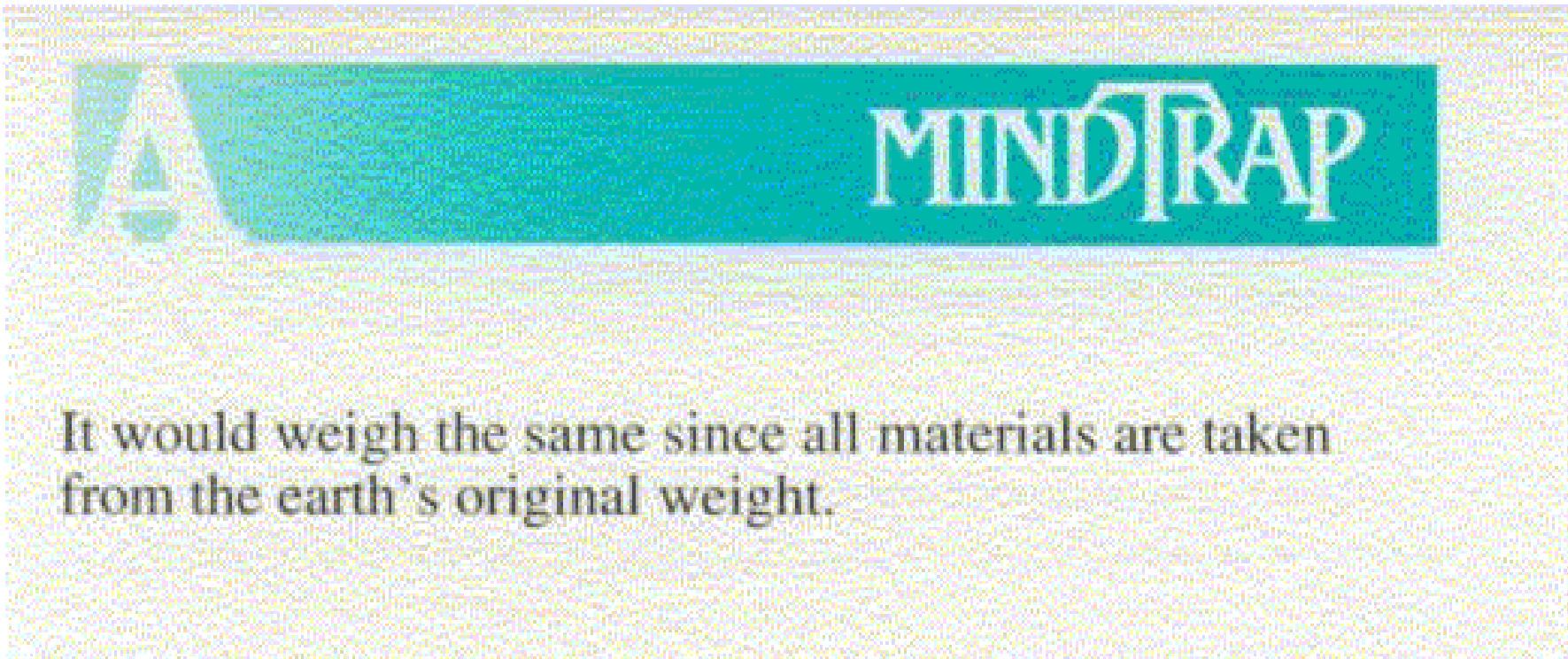
Dig - Answer


MINDTRAP
Eight hours. It takes twice as long to double the length, twice as long to double the width, and twice as long to double the depth. To find cubic measurement you multiply length x width x height; therefore, on the first hole, one hour equals 2m x 2m x 2m = 8 cubic meters. On the second hole, the formula is 4m x 4m x 4m = 64 cubic meters.

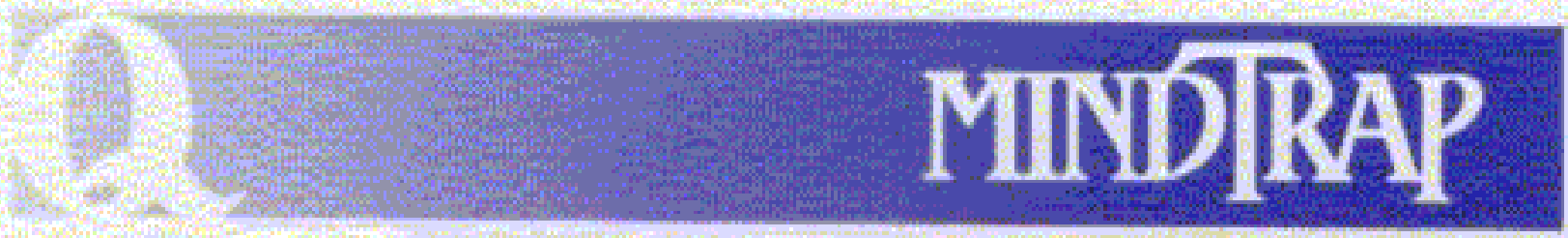
Earth


MINDTRAP
It is estimated that the earth weighs 6 sextillion tons. How much more would the earth weigh if one sextillion tons of concrete and stone were used to build a large wall?

Earth - Answer

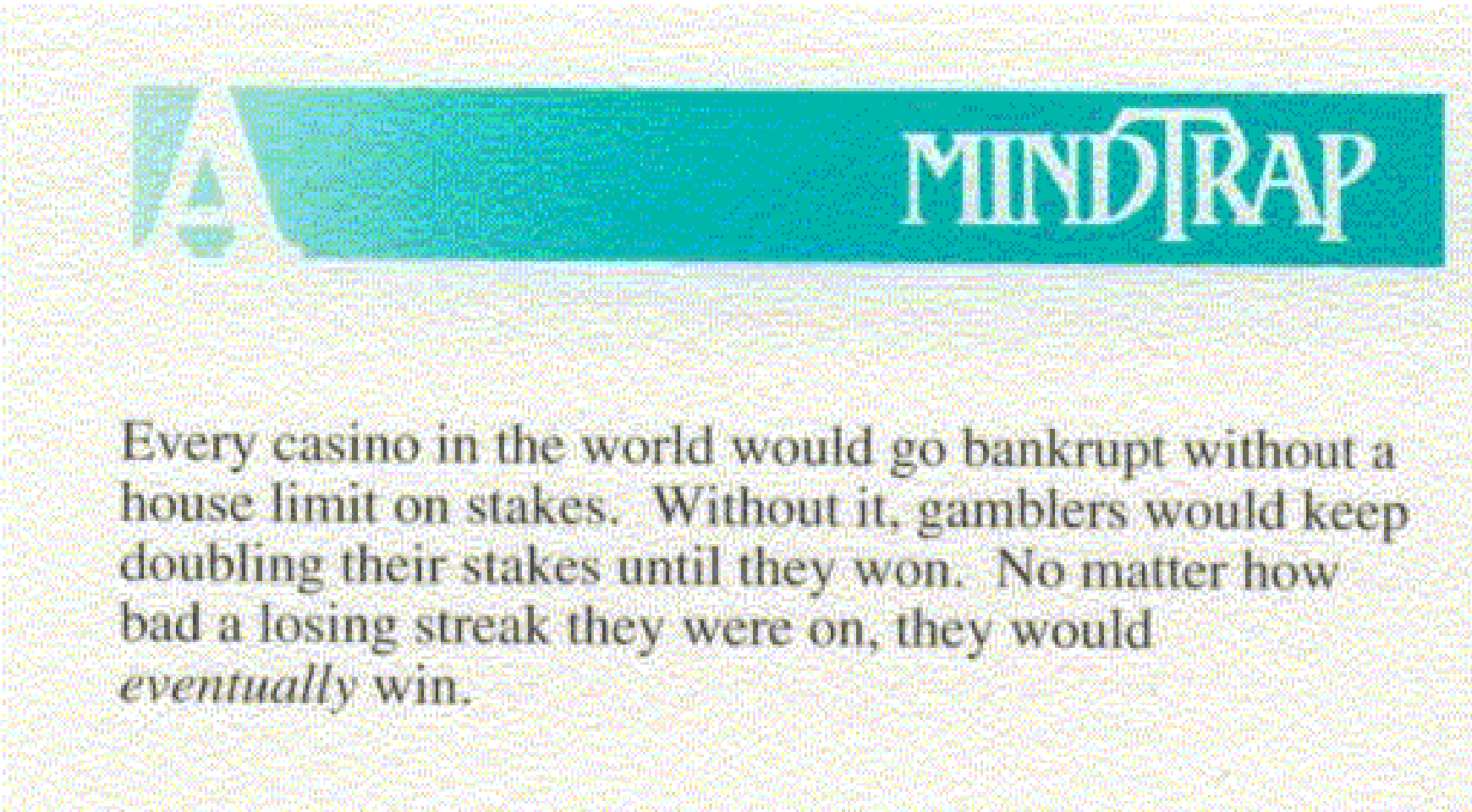


Gamble

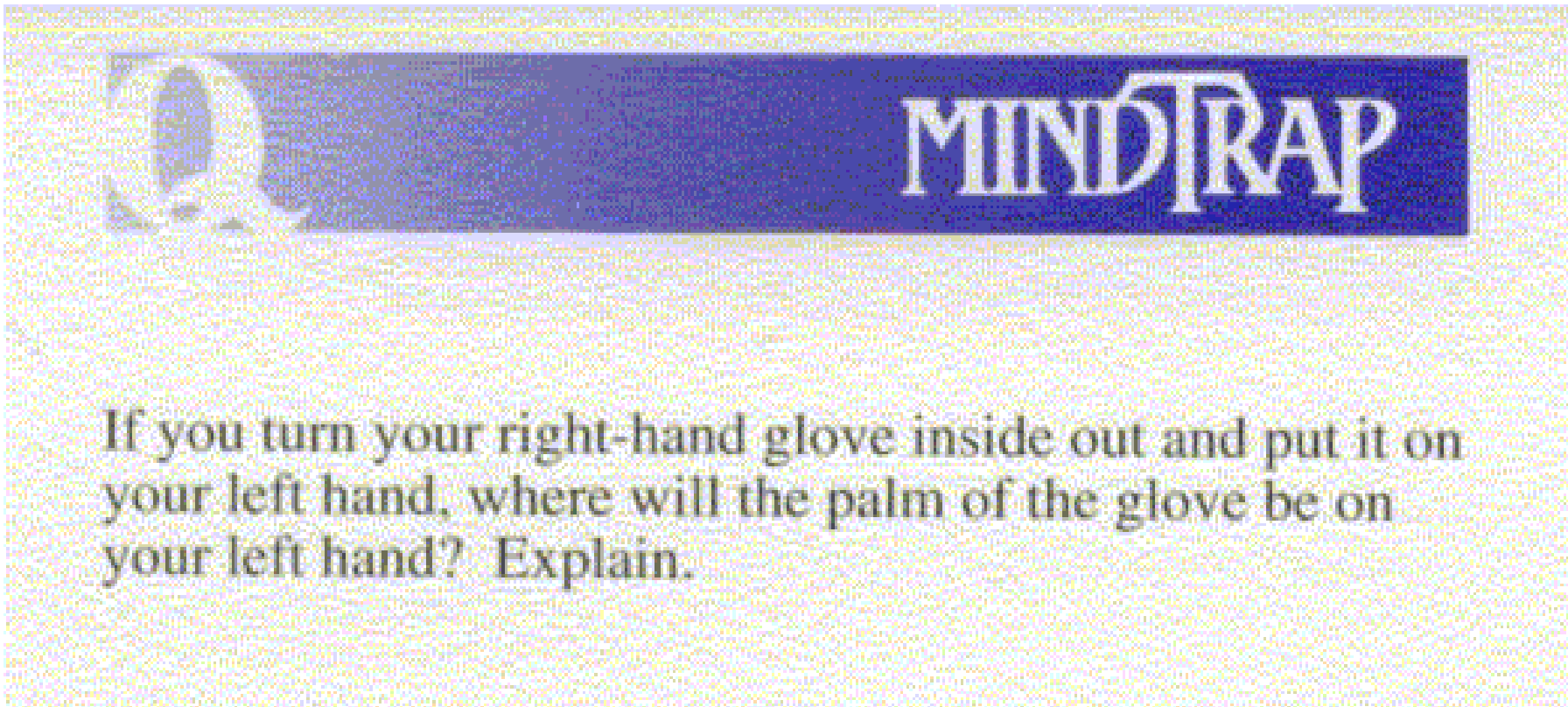


- Even though the odds are always in favour of the gambling house, why does the establishment insist on a house limit on stakes?

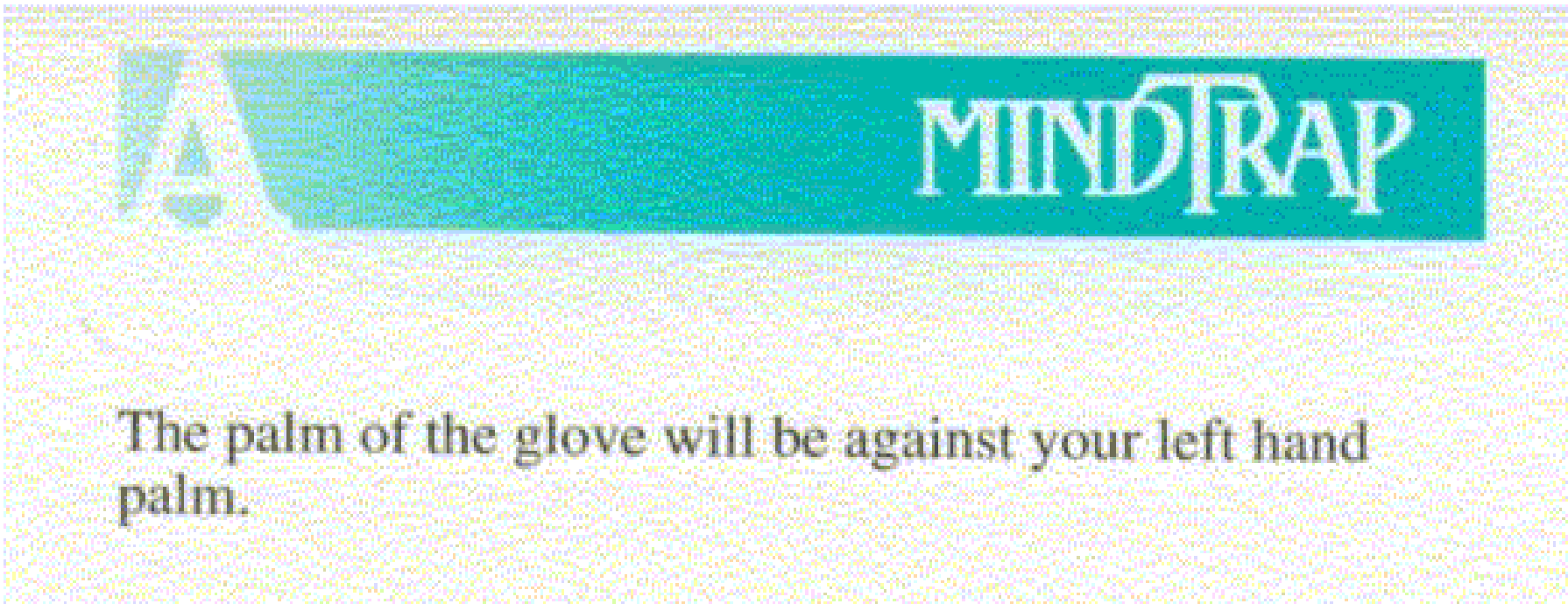
Gamble - Answer



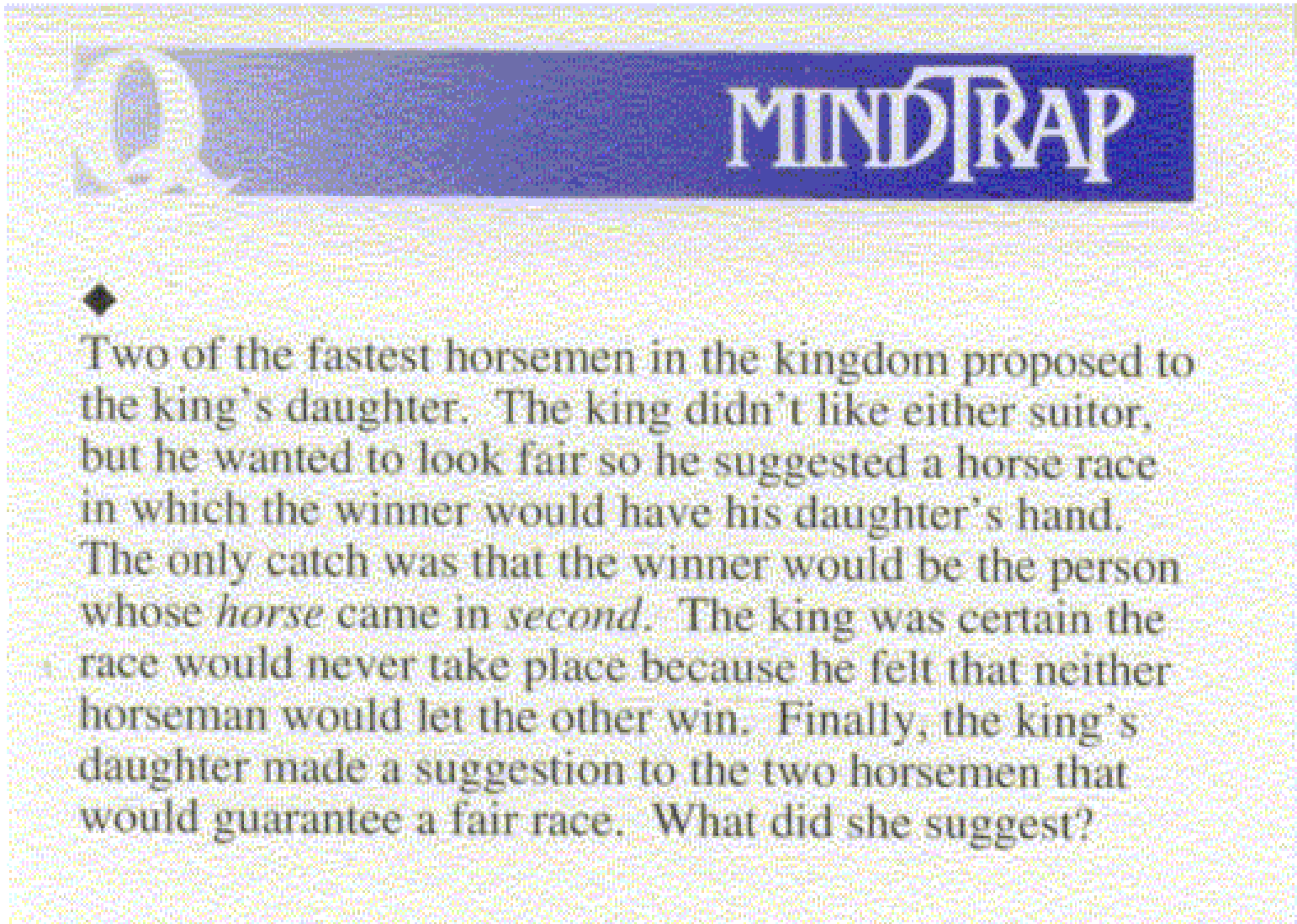
Glove


MINDTRAP
If you turn your right-hand glove inside out and put it on your left hand, where will the palm of the glove be on your left hand? Explain.

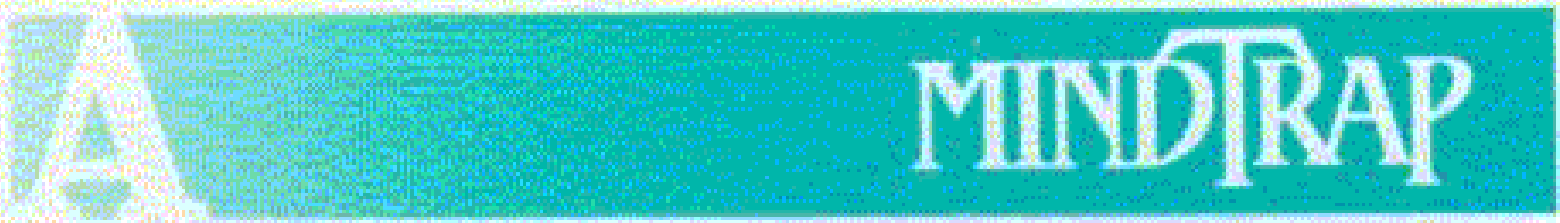
Glove - Answer



Horsemen

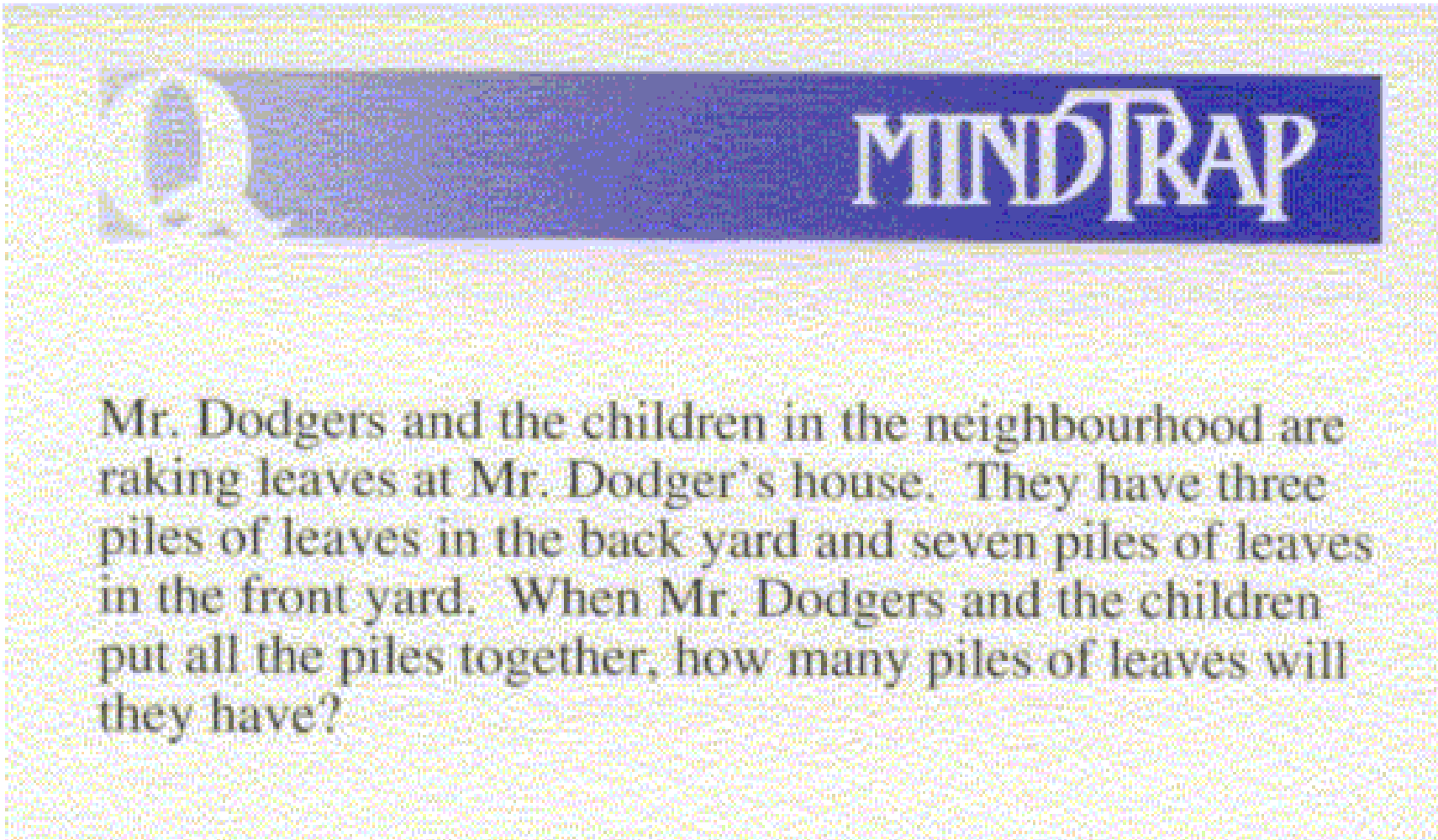

MINDTRAP
Two of the fastest horsemen in the kingdom proposed to the king's daughter. The king didn't like either suitor, but he wanted to look fair so he suggested a horse race in which the winner would have his daughter's hand. The only catch was that the winner would be the person whose *horse* came in *second*. The king was certain the race would never take place because he felt that neither horseman would let the other win. Finally, the king's daughter made a suggestion to the two horsemen that would guarantee a fair race. What did she suggest?

Horsemen - Answer



The king's daughter suggested that the two horsemen trade horses. Each horseman would now try to win the race, since if he did, his *horse* would come in *second*, and he would win the king's daughter's hand in marriage.

Leaves


MINDTRAP
Mr. Dodgers and the children in the neighbourhood are raking leaves at Mr. Dodger's house. They have three piles of leaves in the back yard and seven piles of leaves in the front yard. When Mr. Dodgers and the children put all the piles together, how many piles of leaves will they have?

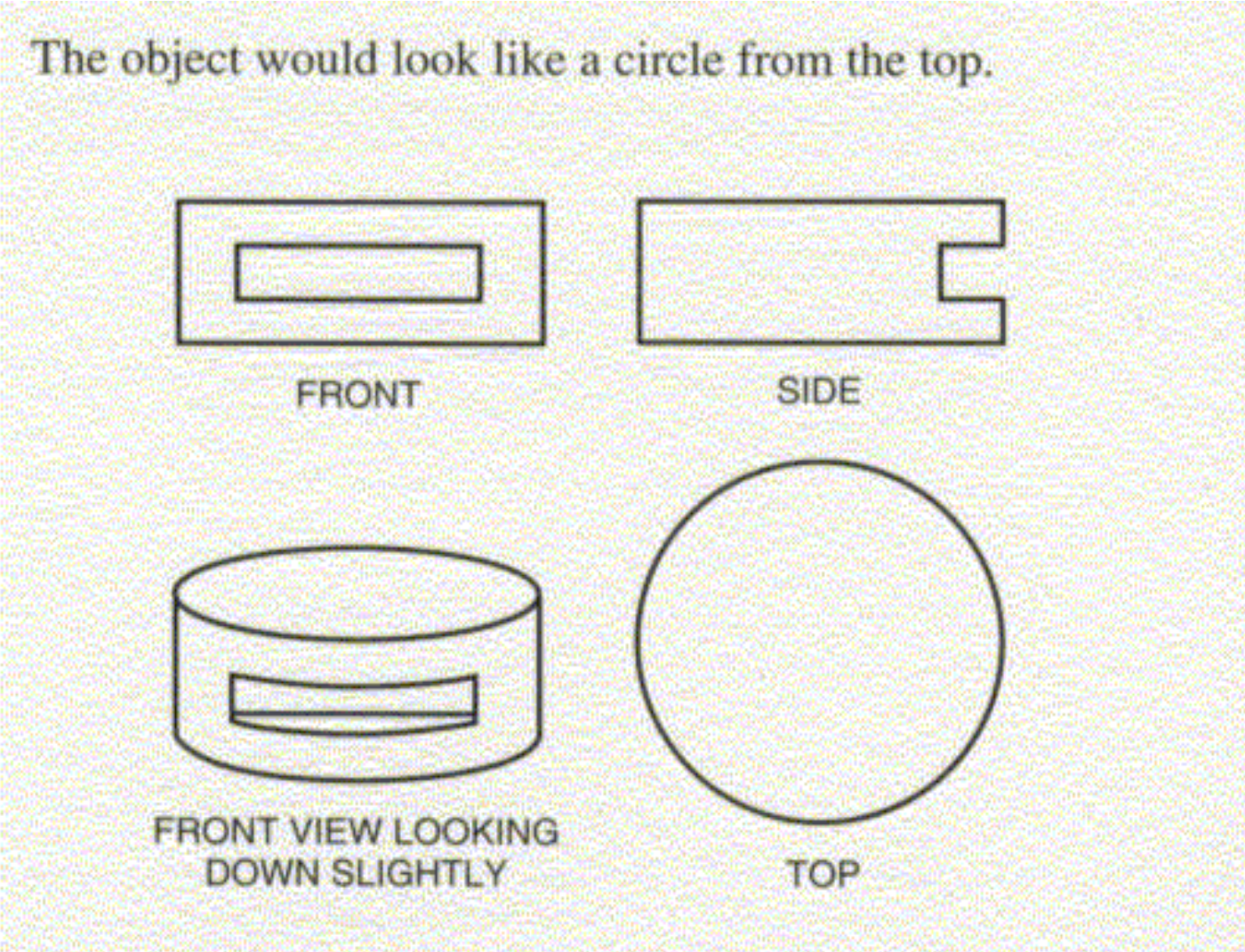
Leaves - Answer

Object

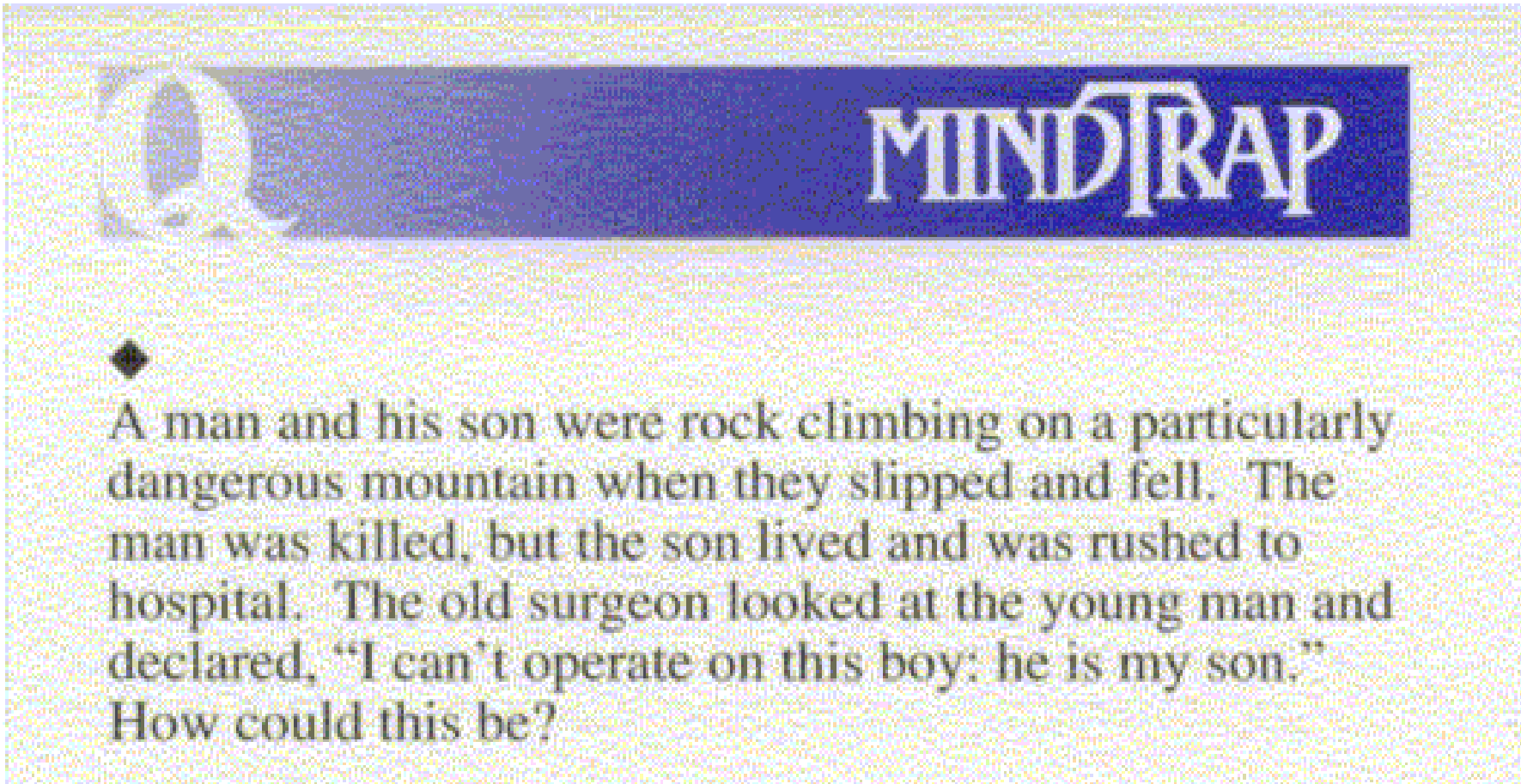
MINDTRAP

Shown below is an object that is viewed directly from the front and the same object as you would see it from the side. What would the shape be like viewed from the top?

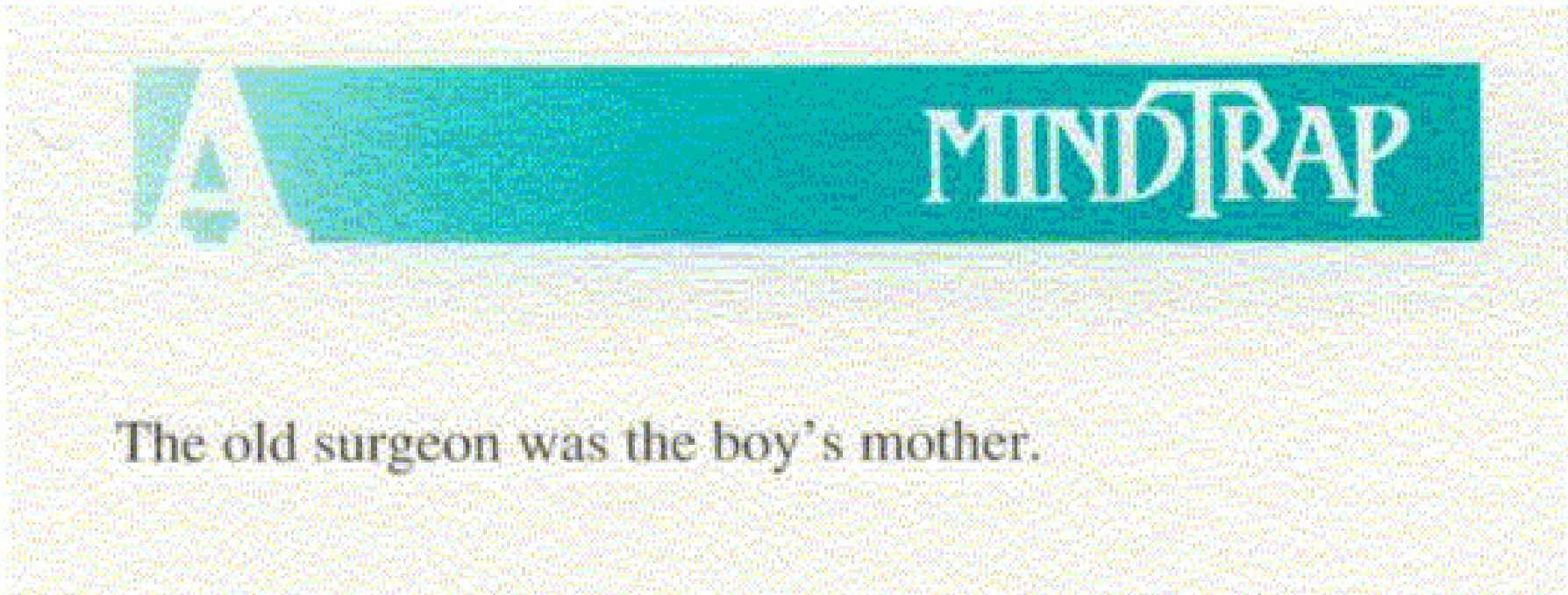
Object - Answer



Operate


MINDTRAP
A man and his son were rock climbing on a particularly dangerous mountain when they slipped and fell. The man was killed, but the son lived and was rushed to hospital. The old surgeon looked at the young man and declared, "I can't operate on this boy: he is my son." How could this be?

Operate - Answer



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