

Introduction to Problem Solving & Critical Thinking - 3

Part 13c1 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

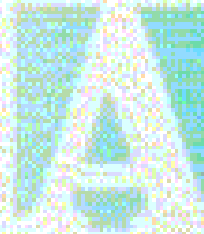
- A word puzzle game from Pressman Toy Corporation.
- Here there are some trick questions (groan)
- Designed to be fun for ages 12 \$ up

Family

Q MINDTRAP

Mr. and Mrs. Plum have six daughters and each daughter has one brother. How many people are in the Plum family?

Family - Answer



MINDTRAP

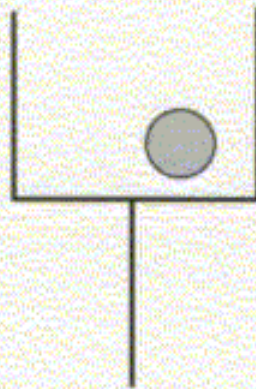
There are nine Plums in the family. Since each daughter shares the same brother, there are six girls, one boy and Mr. and Mrs. Plum.

Glass

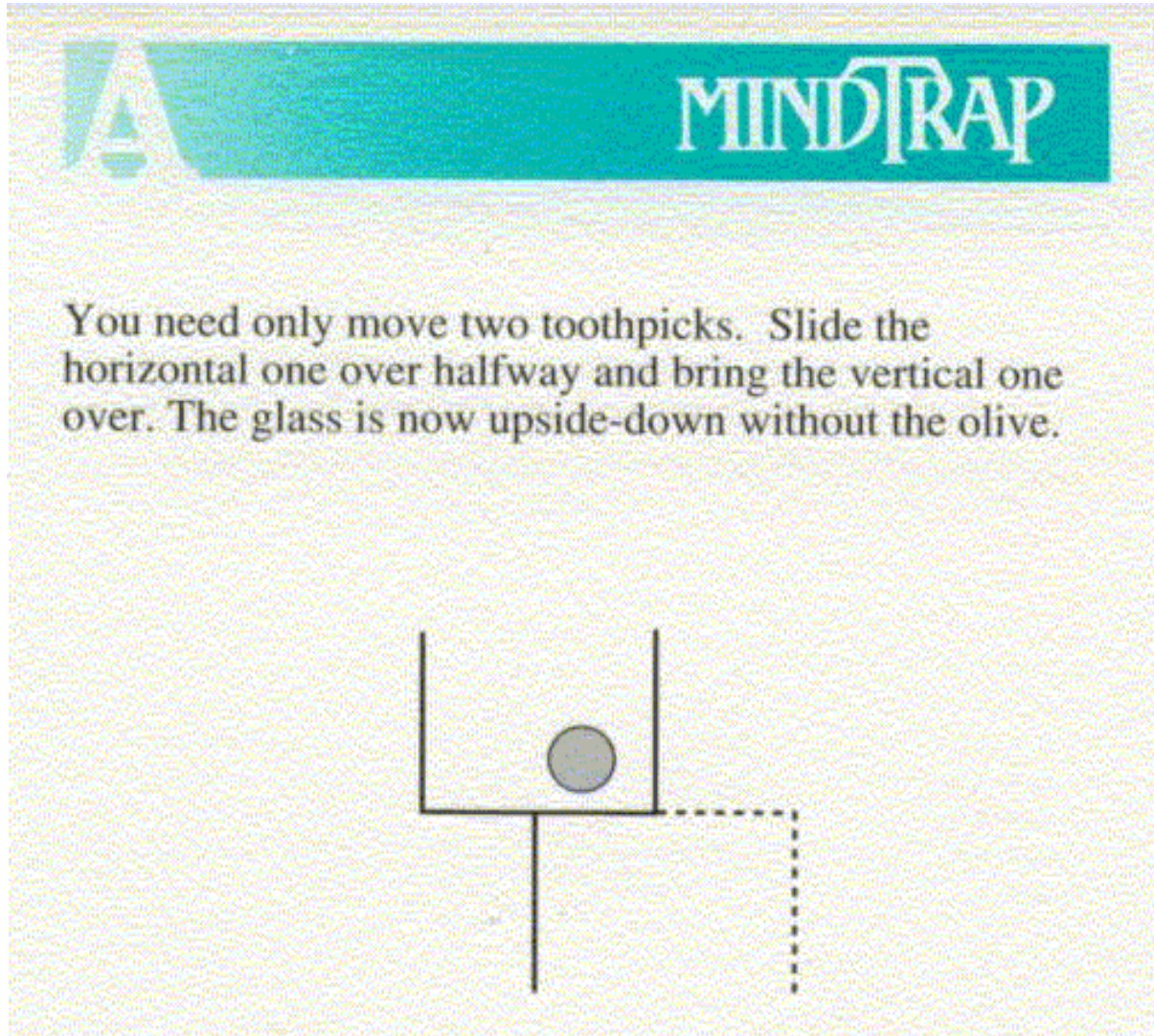
Q

MINDTRAP

There are four toothpicks and a penny arranged as shown. This represents a glass with an olive inside. What is the minimum number of toothpicks you would have to move to get the olive outside of the glass?
NOTE: The olive must remain untouched.



Glass - Answer



Gold

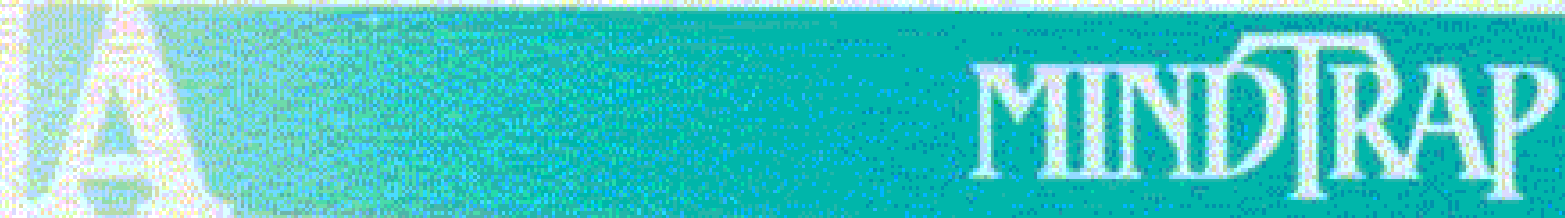
Q

MINDTRAP



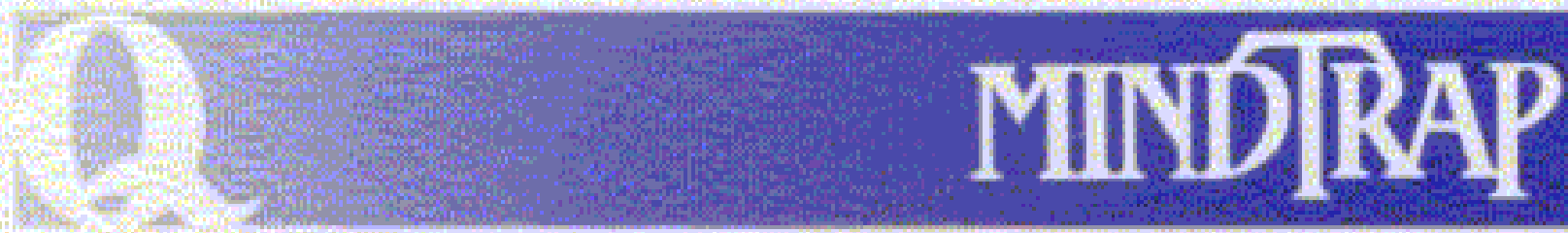
Dee Septor, the famous magician, was carrying three pieces of gold, each weighing one kilogram. While strolling through the forest he came to a bridge which posted a sign saying the bridge could hold a maximum of 80 kilograms. Dee weighs 78 kilograms and the gold weighs three kilograms. Dee, however, read the sign and safely crossed the bridge with all the gold. How did he manage?

Gold - Answer



Dee Septor is an accomplished juggler. When he came to the bridge he juggled the gold, always keeping one piece in the air.

Invention



◆
There is an ancient invention still used in some parts of the world today that allows people to see through walls. What is it?

Invention - Answer

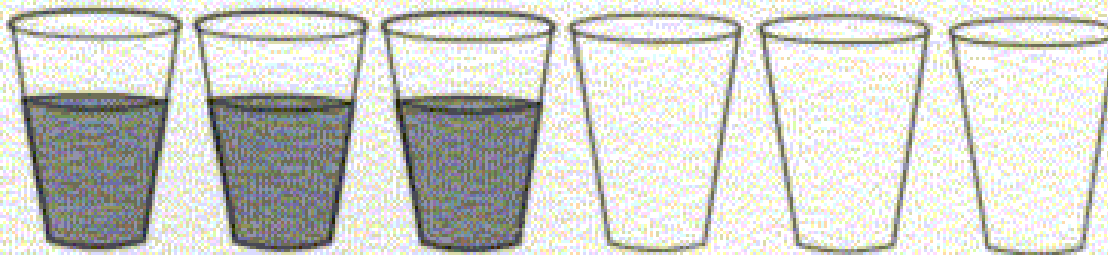


Juice

Q

MINDTRAP

Six glasses are in a row. The first three are filled with pineapple juice, and the last three are empty. By moving only one glass, can you arrange them so that the full and the empty glasses alternate?



Juice - Answer

A

MINDTRAP

Pour the pineapple juice from the second glass into the fifth glass.

Land

Q MINDTRAP

Two farmers, Clem Walton and John Brown were discussing their farms when Clem said to John, "My property is a mile square." John looked at Clem and said, "As a matter of fact, mine is a square mile." "Then there is no difference," replied Clem. Is Clem's last statement correct?

Land - Answer

A MIND TRAP

No. There's no difference in *area* between their two properties, but there may be a drastic difference in *shape*. A mile square cannot be anything other than square. A square mile, however, may be any shape. The term '*square mile*' simply states a unit of area, but does not describe any form or shape.

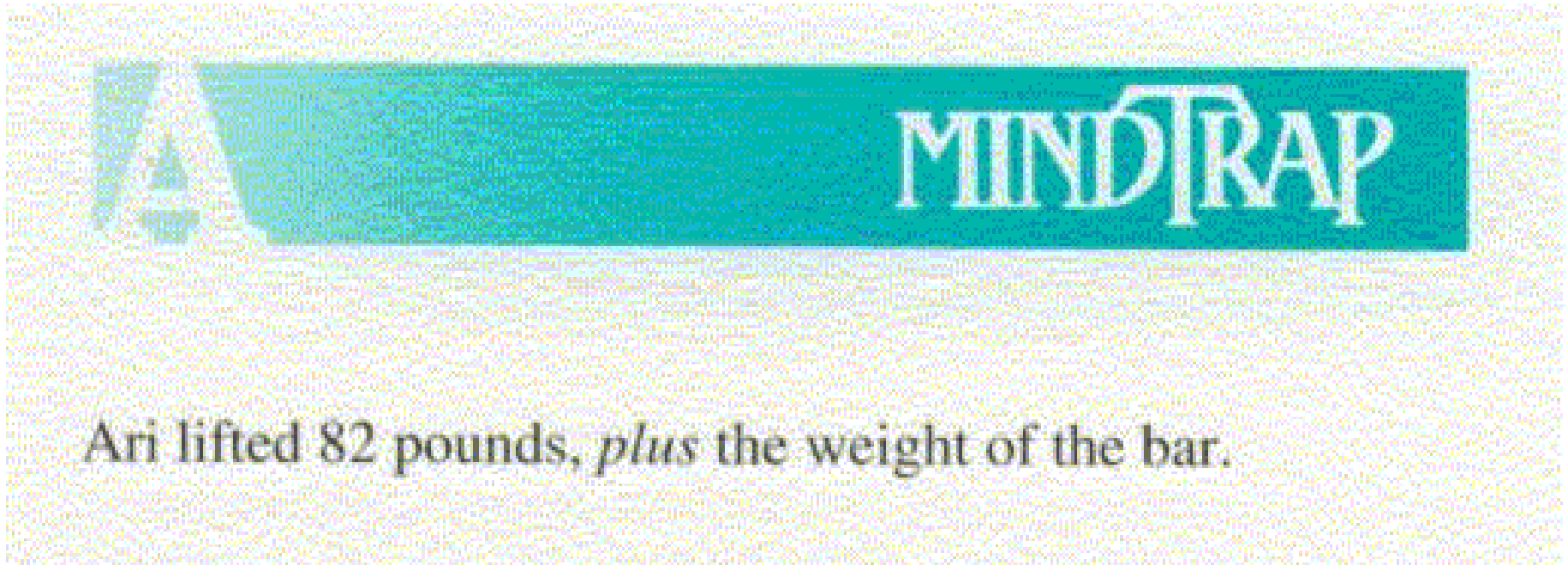
Lift

Q

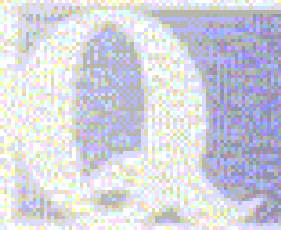
MINDTRAP

While working out with weights, Ari Gant had his personal trainer put a 25 pound weight on each end of the bar, a 10 pound weight on each end, and then three two pound weights on each end. Ari then took over and lifted the bar above his head. How much did Ari lift all together?

Lift - Answer



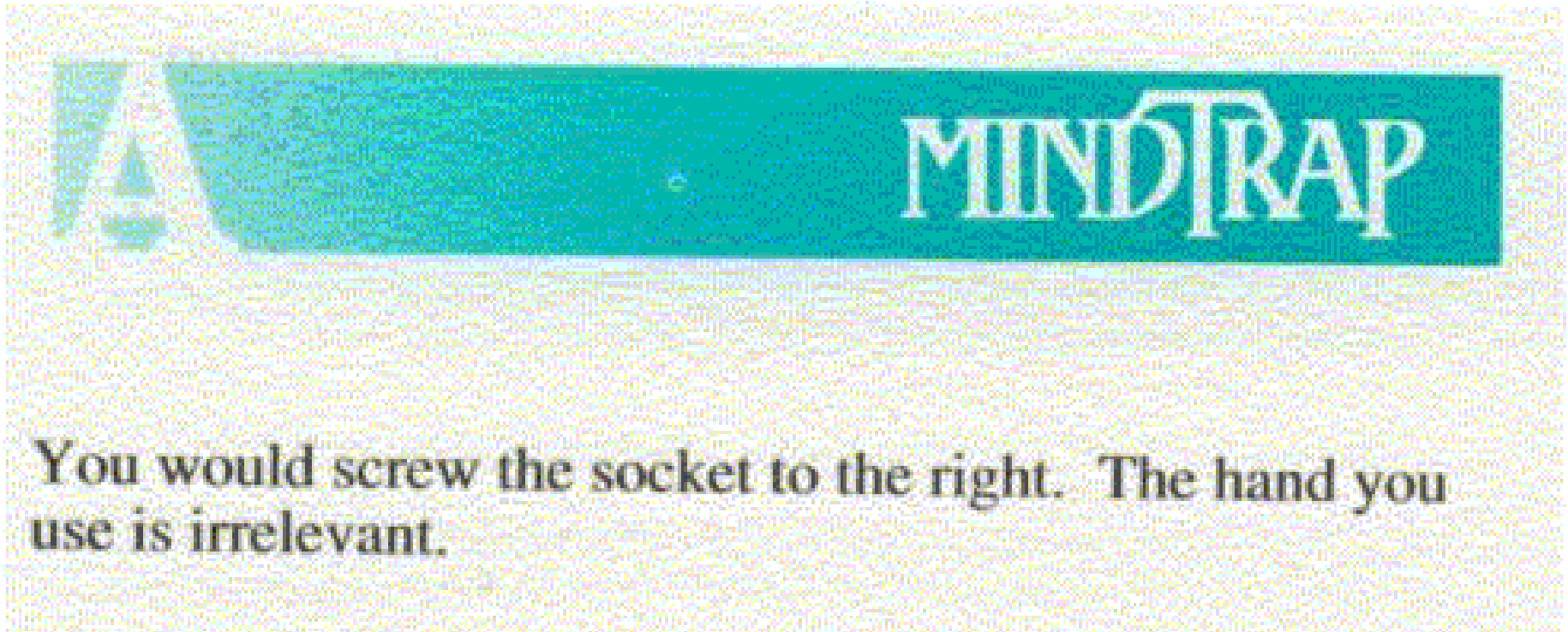
Light




MINDTRAP

If you screw a lightbulb into a socket by turning the bulb toward the right with your right hand, which way would you turn the *socket* with your left hand in order to unscrew it while holding the bulb stationary?

Light - Answer



Links

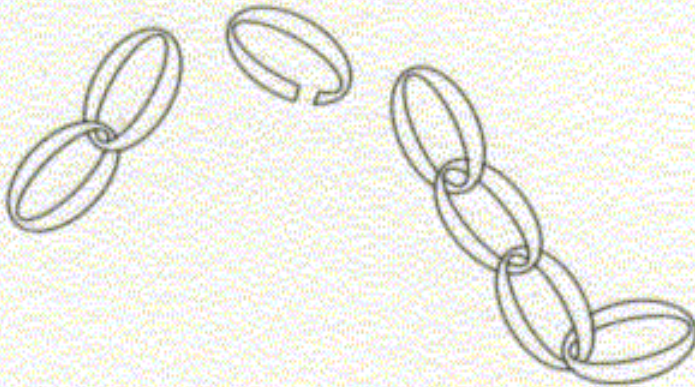


Farah Feline was out of town on business, and needed a room for a week. When she went to pay the clerk she realized her credit card was missing. Her bank said it would be one week before they could deliver a new card. Farah turned to the desk clerk and said, "I have a solid gold chain with seven links. Each link is worth well over \$100. I'll give you the chain as collateral until my card is replaced. Just to be on the safe side, I'll give you one link each day for seven days." Farah realized that she could trade links back and forth and avoid a lot of unnecessary cuts to the chain. What is the fewest number of cuts she would have to make and how would she trade the links back and forth?

Links - Answer

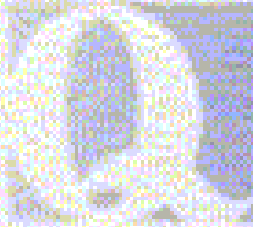
A **MINDTRAP**

Farah realized she would only need to cut the third link. By making this one cut, she would have a single link, a double link, and a length with four links. By trading back and forth she would be able to increase her payment by one link each day.



The diagram shows a chain of four links. The third link from the left is highlighted with a thick border, indicating it is the link to be cut. The chain is shown in a perspective view, with the links overlapping.

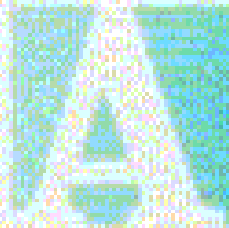
Liquid-Solid



MINDTRAP

What substance weighs more in its liquid form than in its solid form?

Liquid-Solid - Answer



MINDTRAP

This rather popular substance is water. At 32 degrees fahrenheit, the density of *ice* is .9175, whereas, the density of *water* at 32 degrees is .9988. When you add ice to water, you will notice it always floats.

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