

September 1977

DONALD  
+ GERALD  

---

ROBERT

526485  
+197485  
723970

BEST  
+ MADE  

---

MASER

9567  
+1085  
10652

April 1978

I understand	Paradise	Backward glance	Calm down	Cross roads
High chair	Split level	Man overboard	Reading between the lines	Dark ages

January 1979

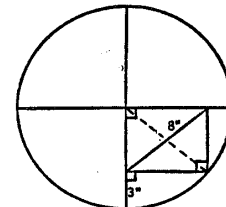
This wouldn't be difficult if one went to bed before the sun went down.

June 1981

THOSE PUZZLES IN THE LAST ISSUE were real sticklers, for only *Peter Franken*, *Fred Bartell*, and *Hyatt Gibbs* submitted correct solutions--and even Peter and Fred preferred to "leave No. 3 for someone else." (Congratulations, Hyatt!)

The solutions are as follows:

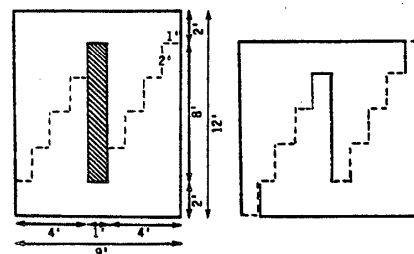
1. You were asked to find the radius of the circle. You'll really kick yourself when you see how easy this is. Note that the diagonal of the rectangle will be the same (8") whether you measure from lower left to upper right (as shown) or from upper left to lower right (dashed line). And the latter diagonal is the radius!



2. Three boxes are labeled "Apples," "Oranges," and "Apples and Oranges," but the labels are mixed up and every box is labeled incorrectly. You may select only one fruit from one box, and you must thereby determine how to correctly label the boxes.

The secret is to select from the box labeled "Apples and Oranges." Now, say you get an apple. Then, since the box isn't actually apples and oranges, it is apples. Of the remaining boxes, the one labeled "Oranges" won't be oranges, so it must be apples and oranges. And the last box, labeled "Apples," has to be oranges.

3. Now No. 3 was hard. You had a 9 x 12-foot rug with an 8 x 1-foot hole in the middle. You were to cut the rug into two pieces so that the two pieces could be sewn together to make a solid rug of 10 x 10 feet. The solution is shown on the right. (Well, who said the cut had to be a single straight line, anyway?)



## September 1981

This problem is quite simple if you note that the coyotes were covering a mile at the combined speed of 30 mph, which means they met in 2 minutes. In that same 2 minutes, the roadrunner, running at 20 mph, would have covered a total distance of  $2/3$  mile.

## October 1981

The banana is 5.75 inches long.

## December 1981 (Santa)

Smith, the engineer, is dressed as Santa Claus.

## December 1981 (Gift Exchange)



## February 1978 (Opticists Crossword Puzzle)

### ACROSS

1. PTOLEMY of Alexandria
3. Peter A. FRANKEN
5. Michael FARADAY
6. Christian HUYGENS
7. James Clerk MAXWELL
10. Benjamin A. GOULD
16. Ernst ABBE
17. George Ellery HALE
21. William John Macquorn RANKINE
22. John TYNDALL
23. Karl Friedrich GAUSS

26. Antonj van LEEUWENHOEK
- 29-30. Giovanni Battista DELLA PORTA
31. Augustin Jean FRESNEL
32. VITELLO
33. Sir David BREWSTER

### DOWN

1. Max Karl Ernst Ludwig PLANCK
2. Heinrich Gustav MAGNUS
4. Sir Isaac NEWTON
8. René DESCARTES
9. ALHAZEN of Cairo\*
10. O. Wolcott GIBBS

11. Paul Adrien Maurice DIRAC
12. Hendrik Antoon LORENTZ
13. Albert Abraham MICHELSON
14. John Baptiste Joseph, Baron de FOURIER
15. Leonardo DA VINCI
18. Willebrord SNELL
19. James Prescott JOULE
20. Charles FABRY
24. Johannes KEPLER
25. Niels BOHR
27. HERO of Alexandria
28. Emil WOLF

\*He is called Alhazen of Cairo to distinguish him from another Alhazen, who translated Ptolemy's Almagest in the 10th century. And this led us last week to erroneously identify him as Egyptian. (In fact, however, even Cairo itself in his time could not strictly be called Egyptian, as it had been founded--only a short time before he moved there--by Egypt's Arab conquerers, the Fatimids.) Thus, with apology to our Iraqi students from the Alhazen Institute, Baghdad, we hope this week to set the story straight.

"Alhazen" is the abbreviated Latin form of the Arabic name of Abu Ali al-Hasen Ibn al-Haytham. He was born in Basra, Iraq, about A.D. 965, but moved to Egypt at the summons of the Fatimid caliph al-Hakim (who reigned from 996 to 1021), after boasting that he could construct a machine for regulating the flooding of the Nile. Once there, and aware of the impracticability of his scheme, he feigned madness to escape execution until Hakim's death in 1021. He remained in Egypt until his own death about A.D. 1039.

Alhazen was possibly the greatest scientist of medieval Islam, and he made the first significant contributions to optical theory since the time of Ptolemy, nearly 900 years before! A medieval Latin translation (in 1270) of his work Optics strongly influenced later writers, including Kepler.