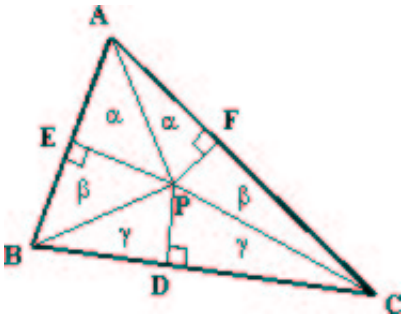
PUZZLES

The SIXTEENTH
Brandon McPhail
Sean Kelly

Proof: All triangles are isosceles



Draw a line bisecting the angle A.

Draw a line bisecting the segment BC that is perpendicular to BC.

If these two lines are parallel, then we know that we have an isosceles triangle. Assume now that they are not parallel. Then they must intersect at a point P.

We may now draw lines from P to E and F that are perpendicular to AB and AC, respectively.

The two triangles α are equal since they have equal angles share one side.

Thus, PE = PF.

Since DP is perpendicular to BC,the two triangles γ must be right triangles.

Since DP bisects BC, D is the midpoint of BC. Thus, the two triangles γ share two sides and one angle and are therefore equal triangles.

Thus, PB = PC.

With two equal sides (PB = PC and PF = PE) and an equal angle each, the two triangles β must therefore be equal triangles.

Hence, BE + EA = CF + FA and the triangle must be isosceles, q.e.d.

Even Aristotle could do this.

Pairing up for Harvest Ball

Two thirds of all the women at Harvest Ball came paired with three fifths of the men as their date for the evening. What fraction of those at Harvest Ball came with a date?

Assume for the purpose of this puzzle that men date women and only **one** per person. I know, I know, but it's not my fault, because... uh...

Oh, there's a **1 minute time limit** for this puzzle to make sure you don't feel smart or anything. So quit reading this text and thinking about the deeper social problems of perceived traditional gender roles and start working the puzzle already!

Kudos to Bill Graham for this one.

Even Freud could do this.

Twenty four

Arrange the digits

4 4 7 7

with any number of the symbols

+ − ∗ / ( )

to construct an expression that evaluates to the value **24**. You may juxtapose digits to produce more complicated expressions like

$4^7 + 4 - 7$ or $447 - 7$ or $\binom{4+7^4}{7}$

although I will not guarantee that this will help you.

Kudos to Bill Graham for this one too.

Even Pythagoras could do this.

Holy Cryptoquote!

"ωβ τξιβ, ψωβ υβλδλ. ωβ κπχβ ψωβ νσσζ ψωξτνλ, πτζ στ ψωβ βπλψβγ μβ ρβ λπζ ρβιπδλβ λσκβρσζα κπχβλ ωξκ ζβπζ ψσζπα."
– ζπεξζ λβζπγξλ ξτ "υβλδλ λωπεβλ"

The text above represents a message that has been encrypted. Each letter in the original text has been substituted with a **unique** greek letter.

Don't be intimidated! These puzzles are easier than they look. Try to decrypt the message by looking for digraphs (th, ch) and common words (is, the, to, be). Good luck!

Even Pythagoras could do this.

So what if Freud can do it??

Even Freud could do this.	Easy
Even Pythagoras could do this.	Not easy
Even Aristotle could do this.	More challenging
Even Kant could do this.	This is a hard problem.
Even Ray Mayer could do this.	Go ask him for help.

Questions? Blitz: **puzzles@reed.edu**

Think you know the answer?
For more info on these puzzles, go to
http://www.reed.edu/~mcphailb/quest/

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The average American depends on over 264 computers per day.
-- Counting Down to Y2K
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