Faculty members are always interested in their salaries and their salary increases. If these data are available publicly, faculty members often compare their increases with those received by others. This comparison can be done in two ways. Table I reports the old salaries, the increases, and the new salaries for a department of 5 members.

Table I

<table>
<thead>
<tr>
<th>Faculty Member</th>
<th>Old Salary</th>
<th>Increase</th>
<th>New Salary</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>$15,000</td>
<td>$1,000</td>
<td>$16,000</td>
</tr>
<tr>
<td>B</td>
<td>$18,000</td>
<td>$1,100</td>
<td>$19,100</td>
</tr>
<tr>
<td>C</td>
<td>$21,000</td>
<td>$1,200</td>
<td>$22,200</td>
</tr>
<tr>
<td>D</td>
<td>$24,000</td>
<td>$1,300</td>
<td>$25,300</td>
</tr>
<tr>
<td>E</td>
<td>$27,000</td>
<td>$1,400</td>
<td>$28,400</td>
</tr>
</tbody>
</table>

After studying Table I, A is unhappy since he has the lowest salary increase in the department. B, C, and D are also not pleased by their increases since each could identify another person who received a larger increase.

One might think that only E would be happy. But E is also displeased, because she has calculated the percents of increase. Table II shows the results of these calculations.

Table II

<table>
<thead>
<tr>
<th>Faculty Member</th>
<th>Old Salary</th>
<th>Increase</th>
<th>% Increase</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>$15,000</td>
<td>$1,000</td>
<td>6.7</td>
</tr>
<tr>
<td>B</td>
<td>$18,000</td>
<td>$1,100</td>
<td>6.1</td>
</tr>
<tr>
<td>C</td>
<td>$21,000</td>
<td>$1,200</td>
<td>5.7</td>
</tr>
<tr>
<td>D</td>
<td>$24,000</td>
<td>$1,300</td>
<td>5.4</td>
</tr>
<tr>
<td>E</td>
<td>$27,000</td>
<td>$1,400</td>
<td>5.2</td>
</tr>
</tbody>
</table>

According to Table II, E received the lowest percent of increase. In fact, the order of the percents of increase is exactly the reverse of the order of the increases themselves. Depending upon whether increases or percent of increases are

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**QUOTES**

To teach a course, you must know much more of the subject than you can possibly put into the course (Halmos, 1985, p. 135).

A teacher who is not always thinking about solving problems--ones he does not know the answer to--is psychologically simply not prepared to teach problem solving to his students (Halmos, 1985, p. 322).

Everyone who teaches, even if what he teaches is high school algebra, would be a better teacher if he thought about the implications of the subject outside the subject, if he read about the connections of the subject with other subjects, if he tried to work out the problems that those implications and connections suggest—if, in other words, he did research in and around high school algebra (Halmos, 1983, p. 199).

Those who complete a strong high school mathematics program reach, roughly, the middle of the seventeenth century while the first year of college calculus carries some students only as far as eighteenth century mathematics (Steen, 1980, p. 3).

To cure our ills, while keeping what we have, requires more science and more intelligent science. ... And to have more and better science, we need more and better scientists (Asimov, 1973, p. 299).

Every intelligent, concerned layman ought to take science seriously (Asimov, 1973, p. 299).

I do not advocate teaching history or philosophy in mathematics courses. Rather, I maintain that the teacher needs to have a thorough acquaintance with them in order to teach more effectively (Long, 1986, p. 618).

**BIBLIOGRAPHY**

Following is a list of books and articles which I have found to be very helpful and interesting to me as I have tried to remain current in my knowledge of mathematics and its applications.

Find applications of mathematics.
Be involved in professional organizations.
E.g.: OCTM, NCTM, MAA
Attend meetings.
Get and read journals.
Comap - consortium
NCTM Agenda For Action
Do some research.
Formal
In class
Solve problems

LUNCH TIME MATH TALKS

One of the things which have been of benefit to both the students and some teachers are short presentations given at lunch time. The presentations are given by teachers, students, and occasionally a parent. A list of some topics presented follows.

"The Pythagorean Theorem" (Student)
"The Problem" (Student)
"The Binomial Theorem" (Student)
"Georg Cantor" (Student)
"Leonard Euler" (Student)
"Pierre Fermat" (Student)
"The Normal Curve" (Student)
"pi are round: a discussion of 3.14159..."
"Two Unsolved Problems in Mathematics" (Student)
"The Swimming Pool Problem: an application of mathematics"
"Square and Triangular Numbers: an Original Result"
"The 1985 Math-Science Day at OSU" (Student)
"Mathematics and Religion: was Spinoza Right?"
"Is Mathematics as Paradoxical as English?"
"Action of Antifungal Agents on Candida albicans" (Student)
"Fatigue Test of Polyvinyl Chloride" (Student)
"Thermal Conductivity of Encapsulation Plastics for Integrated Circuits" (Student)
"An Application of the Calculus" (Student)
"An Application of Mathematics to String Art" (Parent)

MAKING TRIGONOMETRIC RATIOS MEANINGFUL

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High school students working with trigonometric ratios often do not have a complete understanding of the meaning of the functions, not relating them to similar right triangles and the resulting equality of ratios of the corresponding sides. One way to make the trigonometric functions more "real" to students and to integrate use of both the calculator and geometric constructions is to have students construct similar right triangles, take measurements, calculate ratios and compare them. The results, presented in tabular form, make the trigonometric functions appear to be a logical consequence. A suggested sequence of activities is outlined below.

Begin by giving students two activity sheets each containing four line segments of different lengths and orientations. The line segments on one page may all be labeled AC and those on the second A'C'. Instruct students to construct right triangles ABC and A'B'C' for each of the given line segments for specified degree measures of angles A and A' (where the measure of angle A is equal to the measure of angle A') and with the right angle at C. A protractor could be used to draw angles A and A' or, if their degree measures are carefully chosen, angles A and A' may considered, each faculty member may feel unhappy with the new salary.

The reader is encouraged to study actual budget data to see how frequently this apparent anomaly noted in Tables I and II actually occurs.