SALARY INCREASES AND PER CENTS OF INCREASE

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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

Faculty Member	Old Salary	Increase	New Salary
A	$15,000	$1,000	$16,000
B	$18,000	$1,100	$19,100
C	$21,000	$1,200	$22,200
D	$24,000	$1,300	$25,300
E	$27,000	$1,400	$28,400

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

Faculty Member	Old Salary	Increase	% Increase
A	$15,000	$1,000	6.7
B	$18,000	$1,100	6.1
C	$21,000	$1,200	5.7
D	$24,000	$1,300	5.4
E	$27,000	$1,400	5.2

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

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.

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