GLADIS KERSAINT

Changing Sizes

THE EDITORIAL PANEL IS PRESENTING THE following problem to stimulate submissions to "The Thinking of Students" department. We encourage teachers to try this problem with students and analyze the different ways that they use to solve it. Feel free to photocopy this problem for use in your classroom. Please send the following if students generated unique strategies:

- A brief analysis of the specific strategy
- Examples of students' work
- Your name, the school name and address, and your e-mail address

Send submissions to Edward Mooney at mooney@ilstu.edu, by **January 1, 2006**. Published solutions will be credited.

(Solutions on page 187)

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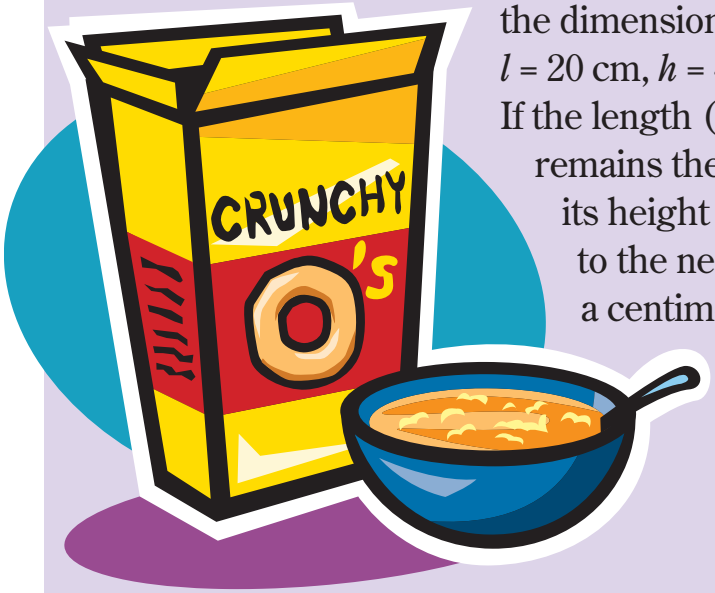
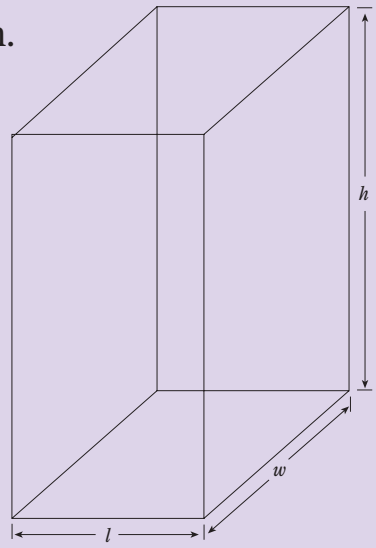


A cereal company wants to change the dimensions of its boxes while keeping the same volume. The box designers are to increase the height (h) of the box by 30% and reduce the width (w). Before the change, the dimensions of the box are $l = 20$ cm, $h = 40$ cm, and $w = 30$ cm. If the length (l) of the new box remains the same, what will be its height and width, rounded to the nearest hundredth of a centimeter?



come down for a 15-year-old (a negative correlation).

5. A graph would show a low percentage of time awake as an infant, then gradually increase as age increases (a positive correlation).

"Tree" Feet Tall?
1. 34 inches/102 inches = 1/3

2.

$$\frac{10-8\frac{1}{2}}{8\frac{1}{2}} \approx 0.176,$$

which is approximately an 18 percent increase.

3.

$$\frac{38-34}{34} \approx 0.1176,$$

which is approximately a 12 percent increase.

4. Answers will vary. For example, a student who is 5 feet, 5 inches would have a 225 percent increase.

$$\frac{65-20}{20} = 2.25 = 225\%$$

5. The tree grew 1 1/2 feet, or 18 inches, and Billy only grew 4 inches. The tree grew more. (Some students may miss converting to the same unit to compare!)

6. No, the percents of increase would remain the same if metric units are used. □

Solutions to November's "Solve It!"
(Continued from page 181)

The new height will be 52.00 cm, and the new width will be 23.08 cm. □