

# It Costs What?

Name(s): \_\_\_\_\_

The price of an item is determined by the cost plus an additional charge to cover the expense of doing business and to make a profit. In general, Prealgebra texts and many businesses use the percent of increase method to determine the price of an item. This involves taking a percent of the cost and adding that amount to the original cost to determine the price.

**Method 1:  $Price = cost + (markup\% \times cost)$**

**Example:** A book costing \$100 with a 25% mark-up would be priced at:

$$Price = \$100 + (0.25)\$100 = \$100 + \$25 = \$125$$

**However**, many college bookstores use the following relationship:

**Method 2:**  $Price = \frac{cost}{(1 - markup\%)}$  and then round to the nearest nickel.

**Example:** A book costing \$100 with a 25% mark-up would be priced at:

$$Price = \$\frac{100}{1 - 0.25} = \$\frac{100}{0.75} = \$133.333 \text{ rounded to } \$133.35$$

Note that this alternative method yields a higher price to the student!

1. The combined beginning and intermediate algebra textbook costs \$99.50 and has a 25% mark-up.

What is the price to the student using method 1? \_\_\_\_\_

What is the price to the student using method 2? \_\_\_\_\_

What is the difference between the prices? \_\_\_\_\_

2. Books which cannot be returned to the publisher for a variety of reasons may have a 30% mark-up. A pre-algebra book which costs \$72.00 cannot be returned because of the cd that comes with the book.

What is the price to the student using method 1? \_\_\_\_\_

What is the price to the student using method 2? \_\_\_\_\_

What is the difference between the prices? \_\_\_\_\_

3. General study guides and reference materials have a 40% or greater mark-up. The Merrian Webster Language reference set costs the bookstore \$11.10 and has a 40% mark-up.

What is the price to the student using method 1? \_\_\_\_\_

What is the price to the student using method 2? \_\_\_\_\_

What is the difference between the prices? \_\_\_\_\_

4. The English Grammar reference card is priced at \$4.95 and has a 50% mark-up, what was the cost to the bookstore if they used method 2 to determine the price?

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The sale price of an item is determined by the current price minus a mark-down which is generally lower than the original mark-up.

**Sales price = current price - (mark-down% x current price)**

**Example:** A book costing \$100 was priced at \$133.35 and now is on sale with a 20% mark-down.

$$\text{Sales price} = \$133.35 - (0.20) \$133.35 = \$100 - \$26.67 = \$106.68$$

5. The algebra textbook in problem #1 is now going on sale at 20% off. Using the price you obtained from method 2, what is the sales price?

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6. The English Grammar reference card reference set in problem #4 is now going on sale at 25% off. Using the price you obtained from method 2, what is the sales price?

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7. The Super Review for Algebra and Trigonometry cost the bookstore \$4.48 and was priced at \$8.95 using method 2. It is now on sale for 45% off, is the bookstore losing money?

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