1 / 52009 Q11

11. The Amaco Middle School bookstore sells pencils costing a whole number of cents. Some seventh graders each bought a pencil, paying a total of \$1.43. Some of the 30 sixth graders each bought a pencil, and they paid a total of \$1.95. How many more sixth graders than seventh graders bought a pencil?

(A) 1 **(B)** 2 **(C)** 3 **(D)** 4 **(E)** 5

11. **Answer (D):** The number of sixth graders who bought a pencil is 195 divided by the cost of a pencil. Similarly the number of seventh graders who bought a pencil is 143 divided by the cost of a pencil. That means both 195 and 143 are multiples of the price of the pencil. Factor $195 = 1 \cdot 3 \cdot 5 \cdot 13$ and $143 = 1 \cdot 11 \cdot 13$. The only common divisors are 1 and 13. If a pencil cost 1 cent, then 195 sixth graders bought a pencil. However, there are only 30 sixth graders, so a pencil must cost 13 cents. Using that fact, $\frac{195}{13} - \frac{143}{13} = 15 - 11 = 4$ more sixth graders than seventh graders bought pencils.

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1990 Q13

13. One proposal for new postage rates for a letter was 30¢ for the first ounce and 22¢ for each additional ounce (or fraction of an ounce). The postage for a letter weighing 4.5 ounces was

A) 96¢ B) \$1.07 C) \$1.18 D) \$1.20 E) \$1.40

13. C The first ounce costs \$ .30. The additional 3.5 ounces would cost 4(\$ .22) = \$ .88. Thus the postage was \$ .30 + \$ .88 = \$1.18.

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2012 Q13

13. Jamar bought some pencils costing more than a penny each at the school bookstore and paid \$1.43. Sharona bought some of the same pencils and paid \$1.87. How many more pencils did Sharona buy than Jamar?

(A) 2 (B) 3 (C) 4 (D) 5 (E) 6

13. **Answer (C):** Since $143 = 11 \times 13$ and $187 = 11 \times 17$, the pencils cost 11 cents each. That means Sharona bought $17 - 13 = 4$ pencils more than Jamar.

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1988 Q12

12. Suppose the estimated 20 billion dollar cost to send a person to the planet Mars is shared equally by the 250 million people in the U.S. Then each person's share is

A) \$40 B) \$50 C) \$80 D) \$100 E) \$125

12. C The cost per person $= \frac{\text{total cost}}{\text{number of people}}$.

Thus $\frac{\$20 \text{ billion}}{250 \text{ million}} = \frac{2 \times 10^{10}}{2.5 \times 10^{8}} = .8 \times 10^{2} = \$80.$

OR

Since $\frac{1000000000}{250000000} = 4$, the cost per person is (\$4)(20) or \$80.

1987 Q15

15. The sale ad read: "Buy three tires at the regular price and get the fourth tire for $3." Sam paid $240 for a set of four tires at the sale. What was the regular price of one tire?

A) $59.25 B) $60 C) $70 D) $79 E) $80

15. D The regular price for three tires is $240 - $3 = $237.

Thus the regular price of one tire is $\frac{\$237}{3} = \$79$.