

GMAT HACKS Newsletter Explanations: May 23, 2008 (#54)

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1. A

Explanation: Recognize the expression as the difference of squares. $(x + y)(x - y) = x^2 - y^2$, so:

$$(\sqrt{x} + \sqrt{y})(\sqrt{x} - \sqrt{y}) = (\sqrt{x})^2 - (\sqrt{y})^2 = x - y$$

We're given the values of x and y :

$$x - y = 7 - 5 = 2, \text{ choice (A).}$$

2. A

Explanation: The team we're looking for will choose 1 person from a population of 10 with professional experience. There are 10 such choices. The team will also have 2 people from the remaining 8 who do not have professional experience. The number of such choices is determined by the combinations formula:

$$\frac{n!}{k!(n-k)!} = \frac{8!}{2!(8-2)!} = \frac{8!}{2!6!} = \frac{8 \times 7}{2} = 28$$

Since there are 10 choices for the one professional and 28 choices for the pairs of non-professionals, the total number of possible teams is the product:

$$28 \times 10 = 280, \text{ choice (A).}$$

3. E

Explanation: Note, of course, that you don't have to find the actual value of the investment. That would be extremely cumbersome without a calculator.

Instead, think about what is happening mathematically when interest is compounding. After the first year, the total amount of money is:

$$\$10,000 + 0.065(\$10,000) = 1.065(\$10,000)$$

The next year results in more interest, because the interest is 6.5% on the sum at the end of the first year:

$$1.065[1.065(\$10,000)] = \$10,000(1.065)^2$$

For each successive year of compounding, multiply the result by another 1.065, for a final answer of:

$$\$10,000(1.065)^4, \text{ choice (E).}$$

4. B

Explanation: Initially, the price of the product is given by:

$$p = xy$$

where p is the price, x is the number of ounces, and y is the price per ounce.

The number of ounces then changes to $1.25x$, and the price per ounce decreases, but we don't know by how much. So say that the price per ounce is now qy , where q is the fraction of the original price represented by the new price. (If the old price was \$10 and the new price is \$9, $q = 0.9$.)

Thus:

$$p = (1.25x)(qy)$$

We now have two expressions that are equal to p , so we can set them equal to each other:

$$xy = (1.25x)(qy)$$

$$1 = 1.25q$$

$$q = \frac{1}{1.25} = \frac{1}{\frac{5}{4}} = \frac{4}{5} = 0.8$$

If the new price is 0.8 of the old price, that's a decrease of 20%, choice (B).

5. C

Explanation: If $xy \neq 0$, then none of the variables are equal to zero. Since x isn't zero, we can simplify the equation by dividing by x , leaving:

$$y = m$$

If y and m are equal, then the difference between them is zero. That's phrased another way in choice (C):

$$m - y = 0, \text{ which is correct.}$$