

Explanation: When a graph is symmetric with respect to $x = 2$, it means that any two other x values that are equally distant from 2 have the same corresponding y value. In other words, if the graph is symmetric with respect to $x = 2$, the y value is the same for $x = 0$ and $x = 4$. So, if we need the y value that corresponds to $x = 3$, it would be sufficient to know the y value that corresponds with $x = 1$. The question tells us that when $x = 1$, $y = 1$, so the answer is 1, choice (E).

Question: 10

Page: 153

Difficulty: 4

Category 1: Arithmetic > Percents > other

Category 2: Arithmetic > Fractions >

Explanation: In fractional terms, $\frac{1}{10}$ percent is one one-hundredth of $\frac{1}{10}$, or $\frac{1}{1000}$. Thus, the question is asking for the result of $\frac{1}{10}(5,000) - \frac{1}{1000}(5,000)$. Another way to write that would be $\frac{5,000}{10} - \frac{5,000}{1,000}$, which is equivalent to $500 - 5 = 495$, choice (D).

Question: 11

Page: 153

Difficulty: 5

Category 1: Arithmetic > Powers and Roots of Numbers > Roots other than 2

Category 2: Arithmetic > Powers and Roots of Numbers > Roots

Explanation: When dealing with very small decimals, like 0.000064, it is often easier to rewrite them using scientific notation. $0.000064 = 64 \times 10^{-6}$, so we can think of the question as $\sqrt{\sqrt[3]{64 \times 10^{-6}}}$. Start from the inside, and to make things simpler, think of 64 as 2^6 . Thus, the first step is simplifying $\sqrt[3]{2^6 \times 10^{-6}}$, which is equivalent to $(2^6 \times 10^{-6})^{1/3}$. Distributing the exponent, we get $(2^6)^{1/3} \times (10^{-6})^{1/3}$, or $2^2 \times 10^{-2}$. The next step is keep working our way out of the radical signs: $\sqrt{2^2 \times 10^{-2}} = (2^2)^{1/2} \times (10^{-2})^{1/2} = 2 \times 10^{-1} = 0.2$, which is choice (E).

Question: 12

Page: 154

Difficulty: 4

Category 1: Arithmetic > Discrete Probability >

Category 2: Arithmetic > Properties of Integers > Other

Explanation: Probability is the number of desired outcomes divided by the number of possible outcomes. The number of desired outcomes is 100: that's how many three-digit numbers there are with a hundreds digit of 2. The number of possible outcomes is 250: that's the number of digits between 101 and 350, inclusive. Remember, if both endpoints (101 and 350) are including, simply subtracting the numbers will give you an answer that is too small by 1. Finally, the probability is $\frac{100}{250} = \frac{10}{25} = \frac{2}{5}$, choice (A).

Question: 13

Page: 154

Difficulty: 4

Category 1: Arithmetic > Percents > other

Explanation: It's worth translating this into an equation—it's a popular type of GMAT question. If the price of an item is x , tax of 7 percent on the amount in excess of \$1,000 is equal to:

$$\text{tax} = 0.07(x - 1000)$$

We know the tax is \$87.50, so we can plug that into the equation and solve for x , the value of the item:

$$87.50 = 0.07(x - 1000)$$

$$87.50 = 0.07x - 70$$

$$0.07x = 157.50$$

$$7x = 15,750$$

$$x = 2,250$$

This last step isn't very friendly since you don't have a calculator. One way to break it down is to separate 15,750 into parts that you know are divisible by 7:

$$15,750 = 14,000 + 1,750$$

$$15,750 = 14,000 + 1,400 + 350$$

$$15,750 = 7(2,000) + 7(200) + 7(50)$$

$$15,750 = 7(2,250)$$

Question: 14

Page: 154

Difficulty: 5

Category 1: Word Problems > Mixture Problems >

Category 2: Arithmetic > Descriptive Statistics > Average

Category 3: Arithmetic > Fractions >

Explanation: Weighted average problems can almost always be simplified. With that in mind, set up the question in algebraic terms, but don't do any calculations until you absolutely must. The weighted average formula for this question looks like this: $\frac{8(12\frac{3}{8}) + 4(15\frac{1}{4})}{12}$. Since the denominator and each of the coefficients in the numerator are divisible by 4, simplify as follows: $\frac{2(12\frac{3}{8}) + 1(15\frac{1}{4})}{3}$. There's still a bit of work involved, but that's much easier. $2(12\frac{3}{8}) = 24\frac{3}{4}$, and $24\frac{3}{4} + 15\frac{1}{4} = 40$. Thus, the final answer will be equivalent to $\frac{40}{3}$: it's choice (A), $13\frac{1}{3}$.

Question: 15

Page: 154

Difficulty: 4

Category 1: Arithmetic > Decimals >

Category 2: Arithmetic > Powers and Roots of Numbers > Powers

Explanation: It may be easier to think about this problem (and avoid careless mistakes) by using fractional equivalents. $0.1 = \frac{1}{10}$, $(0.1)^2 = (\frac{1}{10})^2 =$