1. School uniforms are on sale. The $25 pair of slacks can be purchased at a 20% discount, and the $18 shirt can be purchased at a 25% discount. Using the sale prices, what is the total cost of three pairs of slacks and three shirts, assuming there is no sales tax?

2. A collection of five positive integers has mean 4.4, unique mode 3 and median 4. If an 8 is added to the collection, what is the new median? Express your answer as a decimal to the nearest tenth.

3. What is the sum of the positive integers K such that \( \frac{K}{27} \) is greater than \( \frac{2}{3} \) and less than \( \frac{8}{9} \)?

4. A building modeled after the Chicago Sears Tower consists of 9 square towers arranged in a 3 by 3 grid. They have congruent bases, and the heights, in feet, are indicated in the grid to the right. Which of the following is a side view of the building from some direction?

   - A
   - B
   - C
   - D
   - E

5. What is the volume of the solid shown, in cubic inches?
1. **$100.50**  
School uniforms are on sale. The $25 pair of slacks can be purchased at a 20% discount, and the $18 shirt can be purchased at a 25% discount. Using the sale prices, what is the total cost of three pairs of slacks and three shirts, assuming there is no sales tax?

At the sale price, each pair of slacks will cost \((0.80)(25) = 20\), and each shirt will cost \((0.75)(18) = 13.50\). Three of each item will cost a total of \(3(20) + 3(13.50) = 60 + 40.50 = 100.50\).

2. **4.5**  
A collection of five positive integers has mean 4.4, unique mode 3 and median 4. If an 8 is added to the collection, what is the new median? Express your answer as a decimal to the nearest tenth.

For our collection of five positive integers, the median will be the third integer when they are written in increasing order, so we have \{ _, _, 4, _, _ \}. Since 3 is the mode, it is used more than once, and we see that it can’t be used more than twice. Our collection has two 3s: \{3, 3, 4, _, _ \}. With 3 being a unique mode, we know that no other number is used twice, so our remaining two entries must not be equal to each other. The five integers have a mean (or average) of 4.4. Therefore, the sum of the five integers is \(5 \times 4.4 = 22\). The remaining two entries have a sum of \(22 - 4 - 3 - 3 = 12\). The only option is 5 and 7 since the numbers must be distinct and greater than 4. Our collection is \{3, 3, 4, 5, 7\}. If we add an 8 we have \{3, 3, 4, 5, 7, 8\}. There are now six members in the collection, so the median is the average of the third and fourth members: \((4 + 5) / 2 = 4.5\).

3. **105**  
What is the sum of the positive integers \(K\) such that \(\frac{K}{27}\) is greater than \(\frac{2}{3}\) and less than \(\frac{8}{9}\)?

Changing all of the denominators to 27, we want \(\frac{18}{27} < \frac{K}{27} < \frac{24}{27}\). This means \(K\) can be 19, 20, 21, 22 or 23. The sum of these five values is 105.

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4. **D** A building modeled after the Chicago Sears Tower consists of 9 square towers arranged in a 3 by 3 grid. They have congruent bases, and the heights, in feet, are indicated in the grid to the right. Which of the following is a side view of the building from some direction?

From the placement of the two 300-foot towers, we know that our side view either will show (1) a middle portion reaching 300 feet with the two outer portions reaching 200 feet if we look from the left or right or (2) the left and middle portions reaching 300 feet with the right portion reaching 200 feet if we look from the front or (3) the right and middle portions reaching 300 feet with the left portion reaching 200 feet if we look from the back. This eliminates A and E. Option B can be ruled out, because if we are looking from the front or the back, the middle tower will have a maximum height of 300 and a 200-foot tower in front of it. Option B shows a 100-foot tower in front. Option C does not work, because if the two 300-foot towers are both down the middle, then we are looking from the right or left, and both the left and right column sets will have a 200-foot tower. Option C shows what must be three 100-foot towers on the right side. Option D is our answer. This is looking from the front. The largest tower on the left is 300 feet, but we see a 200-foot tower in front of it; the middle portion has a tallest tower of 300 feet with a 200-foot tower in front of it; and the right portion has a largest tower of 200 feet with a 100-foot tower in front of it.

5. **15,444 in³** What is the volume of the solid shown, in cubic inches?

This solid can be broken into pieces in a variety of ways. One such way is to see a left portion (an 11 by 58 by 18 prism) and a right portion (a 10 by 18 by 22 prism). The total volume is $(11 \times 58 \times 18) + (10 \times 18 \times 22) = 15,444$ cubic units.