

1. Yes. 60 is one of them. It can be divisible 10, 12, 15, 20, and 30.

5. Before solving the problem, I'm going to order the bags by the amount of candy in it. Bag with the least amount of candy is going to be the first bag, bag with the second least amount of candy is going to be the second bag, and so on. First bag has to have at least one candy because in the problem it said so. The second bag has to have at least 2 candies, because 1 bag already has 1 candy or more. Altogether, first 2 bags contain at least 2 candies because those 1 bag might be inside of another. 3rd bag has to have at least 3 candies because another bag has 2 or more candies, this bag has to have more candies because I numbered them by the amount of candies. The 4th bag has to have 4 candies for the same reason. Altogether 3rd and 4th bag have at least 4 candies because 3rd bag might be inside another. First 4 bags altogether have at least 6 candies. 5th and 6th bags together have at least 6 candies for the same reason. 7th and 8th bags have 8 candies for the same reason. Altogether, first 8 bags have at least 20 candies. Therefore, 9 bags would have more than 20 candies.

4. The Smaller Stripes are, the more can fit in the rectangle. If all stripes are 6×1 then there will be 22 of them. But we need to find the smallest possible, to decrease the amount of stripes needed, we need to exchange some 6×1 for 7×1 . Since we're removing the same amount of 1×1 squares as putting back, that amount has to be divisible by both 6 and 7. We can't fit more than 2 of those 6×7 squares. So, there's at least 19 stripes.

3. If we would do 100 1×1 squares the perimeter would be sum of the perimeters equaled to 400. If we would take out 1 of the lines, then we would have 99 1×1 and 1 2×1 square. Since, if there were 2 1×1 squares, then sum of perimeters would be 8, if there were 1 2×1 square, perimeter would be 6, so one line decreases the sum of perimeters by 2. And there's 180 ways to take out one line. therefore, there's 180 ways to cut the 10×10 rectangle into rectangles with perimeter 398.