**Lower Elementary:**

*Question:* Santa can write 120 names on each metre of his list. How many names can Santa fit onto a list that is 4 metres long?

**Upper Elementary:**

*Question:* Santa has 9 reindeer: Dasher, Dancer, Prancer, Vixen, Comet, Cupid, Donner, Blitzen, and Rudolph. Dasher wears 11 jingle bells. Dancer wears 13 bells. Prancer wears 15 bells. If the pattern continues, how many bells do all 9 of Santa’s reindeer have in total?

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**Middle School:**

*Question:* Rachel the Christmas elf can wrap 8 presents in 3 minutes. Alex the Christmas elf can wrap 7 presents in 5 minutes. How much longer will it take Alex to wrap 28 presents than it would take Rachel?

**Algebra and Up:**

*Question:* Rachel the Christmas elf has a cube-shaped gift box with a volume of 512 cubic decimetres. If Rachel uses 576 square decimetres of wrapping paper to wrap the box, how much wrapping paper is overlapping at least 1 layer of wrapping paper?

**Lower Elementary:**

*Question:* Santa can write 120 names on each metre of his list. How many names can Santa fit onto a list that is 4 metres long?

*Answer:* 480 names

*Solution:* We can either add 120 + 120 + 120 + 120, or we can multiply. One hundred twenty is twenty more than 100, and 100 × 4 = 400. That’s twenty extra, four times. 120 × 4 is the same as 400 + 80 = 480.

**Upper Elementary:**

*Question:* Santa has 9 reindeer: Dasher, Dancer, Prancer, Vixen, Comet, Cupid, Donner, Blitzen, and Rudolph. Dasher wears 11 jingle bells. Dancer wears 13 bells. Prancer wears 15 bells. If the pattern continues, how many bells do all 9 of Santa’s reindeer have in total?

*Answer:* 171 bells

*Solution:* Each reindeer has 2 more jingle bells than the last. After Prancer with 15 bells, Vixen has 17, Comet has 19, Cupid has 21, Donner has 23, Blitzen has 25, and Rudolph has 27. The sum of all the jingle bells is 171.

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**Middle School:**

*Question:* Rachel the Christmas elf can wrap 8 presents in 3 minutes. Alex the Christmas elf can wrap 7 presents in 5 minutes. How much longer will it take Alex to wrap 28 presents than it would take Rachel?

*Answer:* 9½ minutes

*Solution:* Since 8 presents goes into 28 presents 3½ times, Rachel needs 3 minutes, 3½ times to wrap 28 presents. So, Rachel takes 3 × 3½ = 10½ minutes, or 10 minutes and 30 seconds. Since 7 presents goes into 28 presents 4 times, Alex needs 5 minutes, 4 times. It takes Alex 5 × 4 = 20 minutes to wrap his presents. So, it takes Alex 20 – 10½ = 9½ minutes longer to wrap his presents.

**Algebra and Up:**

*Question:* Rachel the Christmas elf has a cube-shaped gift box with a volume of 512 cubic decimetres. If Rachel uses 576 square decimetres of wrapping paper to wrap the box, how much wrapping paper is overlapping at least 1 layer of wrapping paper?

*Answer:* 192 square decimetres

*Solution:* The volume of a cube is the side length cubed. To find the side length, we take the cube root of the volume. The cube root of 512 = 8, so the side lengths are 8 decimetres. The area of each of the 6 faces of the cube is 8 × 8 = 64 square decimetres, so the surface area of the box is 64 × 6 = 384 square decimetres. Since Rachel used 576 square decimetres, that means 576 – 384 = 192 square decimetres overlap at least 1 layer of wrapping paper.