**Lower Elementary:**

*Question:* Emily was bringing balloons to a party, but a gust of wind blew 11 of them away. If she has 18 balloons left, how many balloons did she start with?

**Upper Elementary:**

*Question:* For lunch, Misha had a 590 calorie double cheeseburger, 595 calories of french fries, and a 440 calorie soda. If Misha can burn 650 calories per hour swimming at a vigorous pace, how long will it take Misha to burn off all her lunch calories?

****Middle School:**

*Question:*  Tej is building a brick wall. The entire wall will have 486 bricks. On the first day he lays 243 bricks but was more and more tired as the days went on. Each day after the first he only lays $\frac{2}{3}$ of the number of bricks as the previous day. How many days did it take Tej to finish the wall?

**Algebra and Up:**

*Question:* What is the area of Quadrilateral QRST, given QR = 12, RS = 4, ST = 3, and QT = 13?



**Lower Elementary:**

*Question:* Emily was bringing balloons to a party, but a gust of wind blew 11 of them away. If she has 18 balloons left, how many balloons did she start with?

*Answer:*  29 balloons

*Solution:* The 11 balloons that blew away were part of the whole number of balloons Emily had. She was left with 18 balloons, which is part of the whole number she started with. Since a whole = part + part we have, 11 + 18 = 29 balloons.

**Upper Elementary:**

*Question:* For lunch, Misha had a 590 calorie double cheeseburger, 595 calories of french fries, and a 440 calorie soda. If Misha can burn 650 calories per hour swimming at a vigorous pace, how long will it take Misha to burn off all her lunch calories?

*Answer:* 2$\frac{1}{2}$ hours

*Solution:* Find the total calories for Misha’s whole meal, 590 + 595 + 440 = 1,625 calories. Misha can burn 650 calories per hour swimming so we need to find how many 650s are inside of 1,625. 650 + 650 = 1300. Leaving 1,625 − 1,300 = 325 calories, which is half of 650.

So, 650 + 650 + 325 = 1 hr + 1 hr + $\frac{1}{2}$ hr = 2 hours to burn off her lunch.

****Middle School:**

*Question:*  Tej is building a brick wall. The entire wall will have 486 bricks. On the first day he lays 243 bricks but was more and more tired as the days went on. Each day after the first he only lays of the number

 *Answer:* 7 days

*Solution:* First we find 486 − 243 = 243 bricks left to lay after the first day. Each of the following days he lays $\frac{2}{3}$ of the amount left from the previous day. $\frac{2}{3}$ of 243 = 162. He laid 162 bricks on day 2, leaving 243 − 162 = 81 bricks to be laid. If we repeat this process, at the end of day 6 he will only have 1 more brick to lay. Since, we can’t take a fraction, day 7 will be an easy one and Tej will only have to lay one brick.

**Algebra and Up:**

*Question:* What is the area of Quadrilateral QRST, given QR = 12, RS = 4, ST = 3, and QT = 13?



*Answer:* 24 units2

*Solution:* First label the side lengths of the figure then draw a dashed line from R to T. Now we have a nice right triangle, RST. The side lengths form the Pythagorean triple (3, 4, 5), so RT = 5.

Now we can find the areas of the triangles, QRT = $\frac{1}{2}$(12)(5) = 30 units2 and RST = $\frac{1}{2}$ (4)(3) = 6 units2. Subtracting the area of triangle RST from QRT, 30 units2 − 6 units2 = 24 units2.