**Lower Elementary:**

*Question:* Frankie buys a sandwich that costs $4.55 with a $5.00 bill, 2 quarters, and 1 dime. How much change does she get?

**Upper Elementary:**

*Question:* Emily is baking cookies. She arranges the cookie dough blobs on a baking sheet in 7 rows. Every even numbered row has 7 cookies, and every odd row has 8. How many cookies does Emily bake?

**Middle School:**

*Question:* Billy and Cody have a pizza-eating contest to see who can eat a whole pizza faster. Billy can eat a sixth of a pizza in 21/2 minutes. Cody can eat an eighth of a pizza in 11/2 minutes. By how many seconds does the pizza-eating contest winner win?

**Algebra and Up:**

*Question:* The volume of a cone is 1/3 × the area of its base × its height. Allison orders a cone-shaped hand roll from a sushi restaurant that is made of seaweed filled with rice, eel, and avocado. If the hand roll is 4 centimetres across at its base, its height is 4 centimetres, and a third of it is filled with eel and avocado, what is the volume of the rice inside the hand roll?

**Lower Elementary:**

*Question:* Frankie buys a sandwich that costs $4.55 with a $5.00 bill, 2 quarters, and 1 dime. How much change does she get?

*Answer:* $1.05

*Solution:* Since 2 quarters are worth 50¢ and a dime is worth 10¢, Frankie pays for her sandwich with $5.00 + $0.50 + $0.10 = $5.60. So, she gets $5.60 – $4.55 = $1.05 in change.

**Upper Elementary:**

*Question:* Emily is baking cookies. She arranges the cookie dough blobs on a baking sheet in 7 rows. Every even numbered row has 7 cookies, and every odd row has 8. How many cookies does Emily bake?

*Answer:* 53 cookies

*Solution:* The even rows—the 2nd, 4th, and 6th rows—each have 7 cookies. Three rows of 7 cookies have 7 × 3 = 21 cookies. The odd rows—the 1st, 3rd, 5th, and 7th rows—each have 8 cookies. Four rows of 8 cookies have 8 × 4 = 32 cookies. That makes 21 + 32 = 53 cookies in total.

**Middle School:**

*Question:* Billy and Cody have a pizza-eating contest to see who can eat a whole pizza faster. Billy can eat a sixth of a pizza in 21/2 minutes. Cody can eat an eighth of a pizza in 11/2 minutes. By how many seconds does the pizza-eating contest winner win?

*Answer:* Cody wins by 180 seconds.

*Solution:* Billy finishes his pizza in 21/2 × 6 = 15 minutes. Cody finishes his pizza in 11/2 × 8 = 12 minutes. That means that Cody finishes the pizza 15 – 12 = 3 minutes faster, and 3 minutes is equal to 3 × 60 = 180 seconds.

**Algebra and Up:**

*Question:* The volume of a cone is 1/3 × the area of its base × its height. Allison orders a cone-shaped hand roll from a sushi restaurant that is made of seaweed filled with rice, eel, and avocado. If the hand roll is 4 centimetres across at its base, its height is 4 centimetres, and a third of it is filled with eel and avocado, what is the volume of the rice inside the hand roll?

*Answer:* 32/9π centimetres cubed

*Solution:* The base of the cone has a diameter of 4 centimetres, which means its radius is 2 centimetres, so its area is πr2 = 4π. If we plug that value into the formula for the area of a cone, we get 1/3 × 4π × 4 = 16/3π centimetres cubed. Since a third of it is filled with eel and avocado, that means two thirds of it is filled with rice. Two thirds of 16/3π is 32/9π centimetres cubed.