**Lower Elementary:**

*Question:* Freddy’s grandfather reads him a story that is 49 pages long. If it takes Freddy’s Grandfather 2 minutes to read each page, then how long will it take to read the story?

**Upper Elementary:**

*Question:* Westley is 12 decimetres tall. He can reach objects 40 centimetres over his head—45 centimetres if he stands on his tiptoes. Can Westley reach a pitcher that is hanging 160 centimetres off the ground?

**Middle School:**

*Question:* The average rat weighs half a kilogram. A rodent of unusual size weighs 37.5 kilograms. What percentage of a rodent of unusual size’s weight does the average rat weigh?

**Algebra and Up:**

*Question:* Max and Valerie are mixing a magic potion. Max pours 24 decilitres of swamp water into the cauldron. Valerie pours 8 decilitres of unicorn snot into the cauldron. How many more decilitres of swamp water does Max need to add to the cauldron to dilute the mixture to 20% unicorn snot?

**Lower Elementary:**

*Question:* Freddy’s grandfather reads him a story that is 49 pages long. If it takes Freddy’s Grandfather 2 minutes to read each page, then how long will it take to read the story?

*Answer:* 1 hour 38 minutes

*Solution:* Since each page takes 2 minutes to read, we can find the total amount of time the story by taking the number of pages and doubling it: 49 + 49 = 98. So, the story will take 98 minutes to read. Since an hour is 60 minutes, the story will take 1 hour and 98 – 60 = 38 minutes.

**Upper Elementary:**

*Question:* Westley is 12 decimetres tall. He can reach objects 40 centimetres over his head—45 centimetres if he stands on his tiptoes. Can Westley reach a pitcher that is hanging 160 centimetres off the ground?

*Answer:* Yes

*Solution:* Since there are 10 centimetres in a decimetre, Westley is 12 × 10 = 120 centimetres tall. He can reach objects 45 centimetres over his head, so he can reach up to 120 + 48 = 165 centimetres off the ground. The pitcher is only 160 centimetres off the ground, so Westley can easily reach it.

**Middle School:**

*Question:* The average rat weighs half a kilogram. A rodent of unusual size weighs 37.5 kilograms. What percentage of a rodent of unusual size’s weight does the average rat weigh?

*Answer:* 1.%

*Solution:* To find out what fractional part of 37.5 kilograms a 0.5–kilogram rat is, we divide 0.5 by 37.5 to get 0.1. A rat is therefore 1.% the size of a rodent of unusual size.

**Algebra and Up:**

*Question:* Max and Valerie are mixing a magic potion. Max pours 24 decilitres of swamp water into the cauldron. Valerie pours 8 decilitres of unicorn snot into the cauldron. How many more decilitres of swamp water does Max need to add to the cauldron to dilute the mixture to 20% unicorn snot?

*Answer:* 8 decilitres

*Solution:* Max and Valerie’s potion is 24 + 8 = 32 decilitres in total, and 8 ÷ 32 = 25% of the mixture is unicorn snot. In order for the 8 decilitres of unicorn snot to be 20% of the ***x*** -decilitre mixture, 8 ÷ ***x*** = 20% and ***x*** = 40 decilitres. So, since 40 – 32 = 8, 8 decilitres of swamp water must be added to dilute the mixture to 20% unicorn snot.