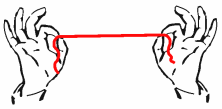
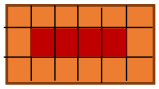
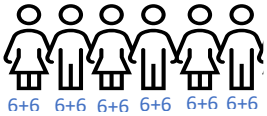
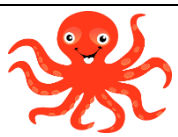
Math Challenge #6

Draw it out!

Kinder & First Grade: solve <u>at least</u> 3 problems.
Second & Third Grade: solve <u>at least</u> 7 problems.
Fourth Grade and above: solve <u>at least</u> 12 problems.

		Answer
1.	Yuki lives in an apartment building. There are exactly 2 floors above her and 2 floors below her. How many floors are there in the building? 2 + 1[Yuki] + 2 = **5 floors**	*5 [floors]*
2.	Quentin lines up three crayons, as seen to the right, such that each one is 3 inches apart from the crayon next to it. What is the length measured from the first crayon to the last crayon? 3 + 3 = **6 inches** 	*6 [inches]*
3.	Cameron, Holly, and Mariyah each drew two snowmen. Cameron and Holly added a hat on each of their snowmen. Mariyah did not. How many of the snowmen had hats? 2[Cameron] + 2[Holly] + 0[Mariyah]= **4 snowmen with hats**	*4 [snowmen]*
4.	There were 9 red balloons and 7 blue balloons to give away. Some kids came by and got their balloons. Now there are only 3 blue balloons left. How many balloons were given away? The number of balloons to give away: 9 + 7 = 16 balloons Since there are 3 balloons left, the number of balloons given away was 16 – 3 = **13 balloons**	*13 [balloons]*
5.	Deana had a string that was 15 inches long. She cut the string into equal pieces of 5 inches in length. How many cuts did she make? Deana will have 15÷5 = 3 pieces 5 inches long, so she did **2 cuts.** Draw it out.  	*2 [cuts]*
6.	The number of brownies with no crispy edges is **4**. 	*4 [brownies]*
7.	66 – 52 – 2 = 12 inches   66 inches 	*12 [inches]*
8.	12 + 12 + 12 + 12 + 12 + 12 = **72 colored pencils** Or 12×6 = **72 colored pencils** 	*72 [colored pencils]*
9.	 3 units: 21 – 3 = 18 1 unit = 18 ÷ 3 = 6 Lucia's age = Maya's age = 6 years. Kyle is 3 years older: 6 + 3 = **9**	*9 [years old]*

10. Oktavia has 8 arms. Her first arm will shake her 7 other arms, her second arm will shake her 6 other arms, her third arm will shake her 5 other arms, and so on. So, 7+6+5+4+3+2+1 = **28**



Another way to approach this problem. Each arm can shake the other 7 arms, but in this case, we'll double count, because when let's say arm 5 shakes arm 3 (at the same time arm 3 shakes arm 5). So, 8×7÷2 = **28**

28 [times]

11. He was standing on the middle step, which means that there must be an odd number of steps on the ladder.

Middle step + 3 - 5 + 7 + 6 = middle step + 11. So, there were 11 steps above the middle step till the end of the ladder (he was able to get to the building, from the last step). It means there were 11 steps before the middle.

11 + 1 +11 = **23 steps in total**

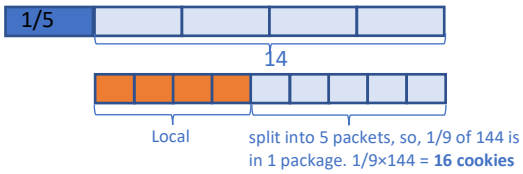
23 [steps]

12. She baked a total of 9×20 = 180 cookies.

4/5 of 180 = 144. She has 144 cookies left after she gave 1/5 of her cookies.
4/9 of 144 = 64. She gave 64 cookies to church.

So, the number of cookies left after that is 144 – 64 = 80 cookies. If she packed the cookies equally into 5 packets, each packet would have 80 ÷ 5 = **16 cookies.**

Or draw a more extensive model:



16 [cookies]

13. First, we need to convert 8.5 feet to inches: 8.5 × 12 = 102 inches.

The length of each side: 102 ÷ 8 = **12.75 inches**

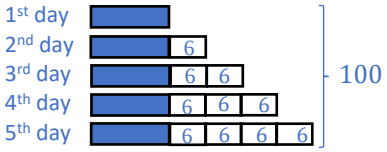
12.75 [inches]
Or 12 ¾ [inches]

14.

Since there are 11 spaces and each space is 15 yards, therefore the track must be 165 yards.

165 [yards]

15.



100 - (60 additional grapes) = 40
40/5 = 8 grapes on the first day

Another way: We can determine first the number of grapes he would have to eat each day on average: 100 ÷ 5 =20. We can use 20 as the middle day (day 3), then add or subtract grapes for the other days.

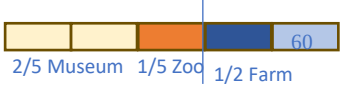
8 [grapes]

16.

20 – 7 = 13. The smaller number is 13 ÷ 2 = 6.5 and the larger number is 6.5 + 7 = 13.5. Therefore, the product must be: 6.5 × 13.5 = **87.75**

87.75

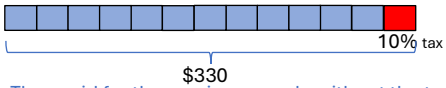
17. Draw a model with a unit bar that is divided into 5 equal parts:



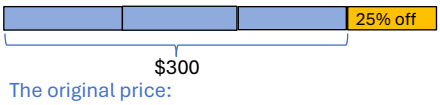
Each unit corresponds to 60 students.
Number of students: 5 units = 5 × 60 = **300**

300 [students]

18. Draw a model.



They paid for the gaming console without the tax:
$330/11 × 10 = 30 × 10 = $300



The original price:
25% → 300 ÷ 3 = $100; 100% → $100 × 4 = $400

$400

Solution is available on December 13, 2024
www.mathinaction.org