

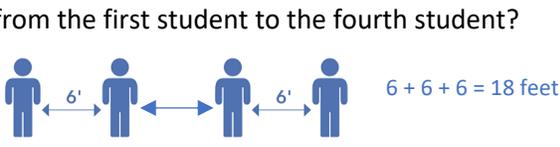
# Math Challenge #12

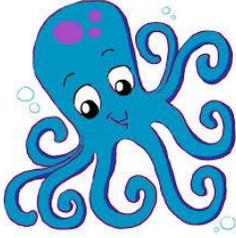


First Name: _____	Last Name: _____	Grade: _____
Teacher: _____	Parent's email: _____	

*Draw it out!*

**Kinder & First Grade: solve at least 3 problems.  
 Second & Third Grade: solve at least 7 problems.  
 Fourth Grade and above: solve at least 12 problems.**

	<i>Answer</i>
1. Anisha lives in an apartment building. There are 2 floors above her and 5 floors below her. How many floors are there in the building?	<i>8 [floors]</i>
2. Four students are lined up 6 feet apart in a straight line. How far (in feet) from the first student to the fourth student? 	<i>18 [feet]</i>
3. Dorothy had a ribbon that is 12 inches long. She cut the ribbon into pieces of 4 inches in length. How many cuts did she make?	<i>2 [cuts]</i>
4. Sachi made a pan of brownies. She cut the brownies into 3 rows with 4 brownies in each row. How many brownies have no crispy edges? 	<i>2 [brownies]</i> 
5. The first graders are lining up for free pizzas. Two out of three students in front of Teresa are boys. Four out of the nine students behind her are girls. How many girls are lining up for the free pizzas? <i>2 out of 3 in front of Teresa are boys, there's 1 girl in front of Teresa. 4 out of 9 students behind her are girls, so 4 girls behind her. 1+4+Teresa herself = 6.</i>	<i>6 [girls]</i>
6. Mrs. Wong needs to build a 20 foot long fence on her back yard. She has to place fence posts in such a way that the distance between the center of each fence post is 5 feet long. How many fence posts are needed?	<i>5 [posts]</i>
7. There are 6 children. Each child is given 2 sets of crayons. Each set of crayons has 4 different colors of crayons. How many crayons in total were given to the 6 children?	<i>48 [crayons]</i>
8. Oleena has a piece of fabric. The fabric is 36 inches long and 42 inches wide. How many 10-inch squares can she cut out of the fabric?	<i>12 [squares]</i>

9.  Ojapati the Octopus decides to shake arms with himself. How many times can Ojapati shake arms with himself with no repeats?  
 Ojapati has 8 arms. His first arm will shake his 7 other arms, his second arm will shake his 6 other arms, his third arm will shake his 5 other arms, and so on.  
 So,  $7+6+5+4+3+2+1 = 28$

*28 [times]*

10. A meter stick is marked in 3 places with equal distance. The first mark is at 29 cm, the last mark is at 83 cm. Find the location of the middle mark.

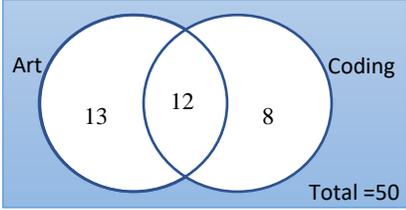


There will be 2 equal spaces from the 29 cm mark to the 83 cm mark. The length is  $83 - 29 = 54$  cm.  
 The length of each space is  $54 \div 2 = 27$  cm. The middle mark must be at  $29 + 27 = 56$  cm mark.

*at 56 [cm mark]*

11. A study of 50 sixth graders showed that exactly 25 of them took Art, exactly 20 of them took Coding, and exactly 12 of them took both subjects. How many of the 50 students took neither Art nor Coding?

$50 - 13 - 12 - 8 = 17$



*17*

12. A piece of wire 10.5 feet long is bent to form a regular hexagon. What is the length of each side, in inches?



$10.5 \text{ feet} = 126 \text{ inches}$ . So, each side of the hexagon is  $126 \div 6 = 21$  inches.

*21 [inches]*

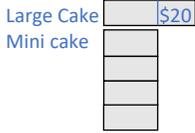
13. There are 7 flags placed on a straight racetrack. The first flag is at the start line, and the last flag is at the finish line. If the distance between each flag is 18.5 yards, how long, in yards, is the track?



Since there are 6 spaces and each space is 18.5 yards, therefore the track must be 111 yards.

*111 [yards]*

14. A large birthday cake and 4 mini cakes cost \$60 altogether. The large cake costs \$20 more than the cost of a mini cake. Find the cost of the large birthday cake.



Notice that from the picture, there are 5 small units plus \$20 have a total of \$60. Therefore, the 5 small units will equal to \$40. Each unit (represents a mini cake) equals to  $\$40 \div 5 = \$8$ .  
 One large cake =  $\$20 + \$8 = \$28$

*\$28*

15. A yard stick is marked in 5 places with equal distance. The first mark is at 13 inches, the last mark is at 34 inches. Find the location of the middle mark.



There will be 4 equal spaces from the 13 inch mark to the 34 inch mark. The length is  $34 - 13 = 21$  inches.  
 The length of each space is  $21/4 = 5.25$  inches. The middle mark must be at  $13 + (5.25 + 5.25) = 23.50$  inch mark.

*23.50 [inch mark]*

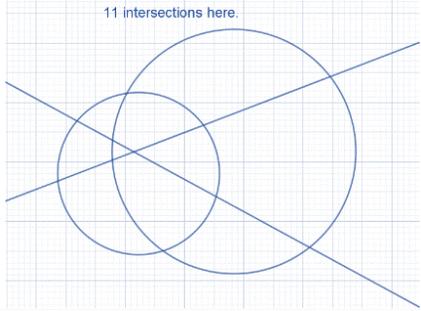
16. A fireman stood on the middle step of a ladder pouring water on a burning building.

- As the smoke cleared, he stepped up three steps.
- But a sudden flare-up forced him to go down five steps.
- He later climbed seven steps and worked until the fire was out.
- At that point, he climbed the last six steps and entered the building.

How many steps were on the ladder?  
*There must have been 23 steps total (he started on the 12th).*

*23 [steps]*

17. What is the greatest number of points of intersection that can occur when 2 different circles and 2 different straight lines are drawn on the same piece of paper?



*11*

18. Meilani finished reading her book in 3 days. On the first day, she read  $\frac{2}{5}$  of the total number of pages. The ratio of the number of pages read on the 2nd day to the 3rd day is 3 to 5. If she read 18 more pages on the 3rd day than on the 2nd, how many pages does the book have altogether?

*Her first day she read  $\frac{2}{5}$  of the total pages, therefore,  $\frac{3}{5}$  was the total pages read on 2<sup>nd</sup> and 3<sup>rd</sup> day.*

*The ratio of the 2<sup>nd</sup> and 3<sup>rd</sup> day is 3 : 5, or 8 units in total.*

Second Day	<input type="text"/>	<input type="text"/>	<input type="text"/>		
Third Day	<input type="text"/>	<input type="text"/>	<input type="text"/>	9 pages	9 pages

*18 pages*

*We can then find she read 8 units  $\times$  9 pages = 72 pages on 2<sup>nd</sup> and 3<sup>rd</sup> day together, which is  $\frac{3}{5}$  of the book. Thus, total pages of the book =  $72 \times \frac{5}{3} = 120$ .*

*120 [pages]*

*Solution is available on April 2, 2021 at [www.mathinaction.org](http://www.mathinaction.org)*