Math Challenge #15

Mixed Problems

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.

		Answer
1.	How many numbers in the chart below are greater than 30? 19 | 31 | 27 | 41 23 | 15 | 51 | 26 13 | 32 | 17 | 33 31, 41, 51, 32, 33 → **5 numbers**	*5 [numbers]*
2.	Tim has 20 toy cars. His friend gives him 4 more. If Tim loses 5 cars, how many toy cars does he have left? After his friend gave him 4 toy cars: 20 + 4 = 24. After he lost 5 toy cars: 24 – 5 = **19 toy cars**	*19 [toy cars]*
3.	Each cookie is \$2 and each brownie is \$4. Liza bought one cookie and two brownies. How much did she have to pay?  \$2 + \$4 + \$4 = \$10	*\$10*
4.	When Monnique was 5 years old, she took ballet lessons. After 2 years of ballet lessons, she switched to tap dancing lessons for a few years. She is now 10 years old and is still enjoying her tap dancing lessons. How long has she been doing tap dancing lessons? 5 + 2 + __ = 10 She has done tap dancing for 10 – 7 = **3 years.**	*3 [years]*
5.	Alexander, Bettina and Chi have a total of 9 candies altogether. If Chi gives 2 candies to Bettina and 1 candy to Alexander, each person then has the same number of candies. How many candies did Chi have at the beginning? In the end, each person has the same number of candies: 9 ÷ 3 =3. Before this, Chi gave out 3 candies in total, so she must have had 3 + 3 = **6 candies**.	*6 [candies]*
6.	Brittany's age: half of 10 = 5 years old. Carla is 6 + 5 = **11 years old.**	*11 [years old]*
7.	We can list the possible two-digits pair that sum to 12: 3 and 9, 4 and 8, 5 and 7, 6 and 6. Only 4 and 8 have a difference of 4. 84 is not less than 50, only **48** is less than 50.	*48*
8.	In order to have the same number of tennis balls in each bucket, we divide the total into 4: (4+7+8+9) ÷ 4 = 28 ÷ 4 = 7. We need to move (8 – 7) + (9 – 7) = **3 tennis balls.**	*3 [tennis balls]*
9.	First, look at the ones: B must be 6. Then C must be 4 because 2+4+ the carry-over of 1 = 7. A must be 7 because 7+8 = 15. So, A×B×C = 7×6×4 = **168.** $\begin{array}{rrrr} & A & 2 & B \\ + & 8 & C & 5 \\ \hline 1 & 5 & 7 & 1 \end{array}$	*168*
10.	Among 19, 29, 39, 49, 59, 69, 79, 89, 99, none of them is divisible by 2 or 5. 39, 69, and 99 are divisible by 3. 49 is divisible by 7. Therefore, the remaining **5 numbers** 19, 29, 59, 79, and 89 are all primes.	*5 [numbers]*

11.	Since the amount earned goes up by the same amount each day, the average of 80/5 = \$16 dollars must have been earned on the third (middle) day. Thus \$16 + \$3 = **\$19** was earned on the fourth day.	*\$19*
12.	 Standard die has 1, 2, 3, 4, 5, 6. Four different numbers that can be multiplied to get 48 are **1, 2, 4, and 6.** Let's check their sum: 1+2+4+6 = 13.	*1, 2, 4, 6*
13.	We can work backwards. Before she ate 2, she had 4+2 = 6. These 6 candies represent 2/3 of the total before giving some to Dale. Before giving some candies to Dale, she had 9 candies. Before giving half of the remaining to Chunlie, she had 9 × 2 = 18 candies. So, before giving 5 candies to Benny, she had 18 + 5 = **23 candies.**	*23*
14.	The perimeter is 8 x the width. The width must be 144 ÷ 8 = 18 meters 	*18 [m]*
15.	Since the average of the 20 scores was 97, the total of all 20 scores was 97·20 = 1940. To minimize the score of any particular student, suppose that each of the other 19 students scored a perfect 100. This accounts for 1900 points, so the remaining student must have scored 1940 − 1900 = **40 points.**	*40 [points]*
16.	We can try guess and check strategy. Anika's rectangle has the following possible dimensions: 6 by 1, 5 by 2, 4 by 3. Bill's rectangle has the following possible dimensions (whole numbers only): 8 by 1. Therefore, Anika's longer side is **4 inches.**	*4 [inches]*
17.	Note that $30^2 = 900$, $31^2 = 961$, and $32^2 = 1024$. So, 32 is the first number whose square is a 4-digit number. Also, $99^2 = 9801$ and $100^2 = 10000$. So, 99 is the last number whose square is a 4-digit number. Among the first 99 positive integers, 31 of them are too small. So, 99 – 31 = **68** of them work.	*68 [numbers]*
18.	The total sum of those jumps = 3.8 multiply by the number of jumps before the two given jumps: S = 3.8n. Her next jump was 3.99 meters and increased the average to 3.81 meters. This means after this jump, the total number of jumps is n+1: S + 3.99 = 3.81 (n+1) 3.8n + .3.99 = 3.81n + 3.81 3.99 – 3.81 = 3.81n – 3.8n n = 18 After the final jump, her average became 3.82 meters: S + 3.99 + final jump = 3.82 (n+2); we know S = 3.8 × 18 = 68.4 68.4 + 3.99 + final jump = 3.82 × 20 Final jump = 76.4 – 72.39 = **4.01 meters**	*4.01 [meters]*

Solution is available on May 9, 2025

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