

Math Challenge #4
SOLUTIONS

1. Marie earns \$2 for completing her daily chores. So far, she did all her chores perfectly for 4 days straight. How much did she earn? **Answer: \$8**

2. There are 3 sets of twins in Mrs. Thorn’s class. How many students are twins in Mrs. Thorn’s class? **Answer: 6**

3. If Rylee doubles her money, she will have 80 cents. How much does she have now? **Answer: 40¢**

4. When a student practices and masters a math skill at www.ixl.com, he or she gets a medal on the award board. Stevie’s goal is to collect 4 medals a week. She has been successfully meeting her goal for 12 weeks straight. How many medals has she gotten so far? **Answer: 48**

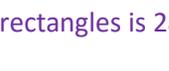
5. Elly expects to have 80 students participate in the next math challenge. She ordered 6 dozen holiday ducks for the winners. Will she have enough ducks? If not, how many more ducks does she need? **Answer: not enough, 8**

6. John and Jack are collecting rare coins. John’s collection is 4 times larger than Jack’s. Jack has 36 rare coins. How many coins are in both of their collection? **Answer: 180**

- John = 4 times Jack’s = $4 \times 36 = 144$, total in their collection is $144 + 36 = 180$*
7. Tonya’s father gave her \$5 allowance for this week. If Tonya triples her money and adds the \$5 that her dad gave her, she would have \$14. How much money does Tonya have? **Answer: \$3**

- Before she adds the \$5, she had $\$14 - \$5 = \$9$. If she tripled her money or multiplied her money by 3 she’ll have \$9. Therefore, she must have $\$9 \div 3 = \3 .*
8. Lance has 3 times the medals Max has. John has 2 times the medals Lance has. If Max has 9 medals, how many medals does John have? **Answer: 54**

- Lance = $3 \times \text{Max} \Rightarrow 3 \times 9 = 27$
John = $2 \times \text{Lance} \Rightarrow 2 \times 27 = 54$*
9. The sum of two numbers is 28. One number is 3 times as big as the other. What is the smaller number? **Answer: 7**

- If the small number is 
Then the large number is 
Then the sum of all 4 rectangles is 28. Therefore, each rectangle is $28 \div 4 = 7$. The small number is 7.*
10. Jeff has a bunch of coins. Figure out how many coins he has using only these facts: **Answer: 72**

- He puts an equal amount in each of 9 bags and has none left over.
 - He puts an equal amount in each of 6 bags and has none left over.
 - He puts an equal amount in each of 5 bags and has 2 left over.
- What is the least amount of coins Jeff could have? **Hint:** Think about the multiples of each number.
Think of the lowest multiple of 6 and 9 that when divided by 5 will give a remainder of 2.
11. During the summer months, one ice cream truck visits Jeannette's neighborhood every 4 days and another ice cream truck visits her neighborhood every 5 days. If both trucks visited today, when is the next time both trucks will visit on the same day? **Answer: 20 days**

Hint: Organize and list your data for truck #1 and truck #2.

Truck

- 1 4, 8, 12, 16, **20**, 24, 28, 32, 36, 40, 44,...
- 2 5, 10, 15, **20**, 25, 30, 35, 40, 45, 50, 55,...

12. Andy's locker number is a three-digit multiple of 5. The tens digit is the sum of the hundreds digit and the ones digit. The sum of all three digits is 146. All digits are distinct. What is Andy's locker number?

Answer: 275

One way is to find the ones digit first.

The locker number must end in 0 or 5 since it's a multiple of 5. It cannot end with 0 because then the hundreds digit and the tens digit would be the same. Therefore, the ones digit must be 5. Our choices is now down to: 165, 275, 385, 495 (tens digit is 5 more than the hundreds digit). Of the list, only 275 has the sum of digits that equals to 14.

13. In order to encourage his son to study math, a father agrees to pay his boy 8 cents for every problem correctly solved and to fine him 5 cents for each incorrect solution. At the end of 26 problems, neither owes anything to the other. How many problems did the boy solve correctly?

Answer: 10 problems

Making an organized list for your guesses:

No. of correct problems	No. of incorrect problems	Rewards (has to be zero)
5	21	$(5 \times 8) - (21 \times 5) \rightarrow$ too low
7	19	$(7 \times 8) - (19 \times 5) \rightarrow$ still too low
9	17	$(9 \times 8) - (17 \times 5) \rightarrow$ pretty close, but still too low
10	16	$(10 \times 8) - (16 \times 5) = 0$

Algebraic way:

Let x represent the number of problems answered correctly, then $26-x$ represent the number of problems answered incorrectly:

$$8x - 5(26-x) = 0$$

$$8x - 130 + 5x = 0$$

$$13x = 130$$

$$x = 10$$

$$26-x = 16$$

Therefore, 10 answers were correct and 16 were incorrect.

Math Challenge 5 will be available online December 4, 2015 at www.mathinaction.org.