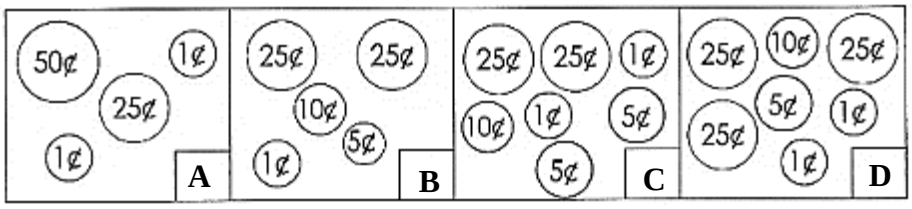
Math Challenge #5

SOLUTIONS

MONEY

There are more math problems involving coins and money. This topic provides students with some real-life money problems we face everyday. Enjoy the challenge!

Kinder & First Grade: solve <u>at least</u> 3 problems.
Second & Third Grade: solve <u>at least 6</u> problems.
Fourth Grade and above: solve <u>at least 12</u> problems.

Problems		*Answer*
1.	Which set has the least amount of money?  	*B*
2.	Maya has two 10-dollar bills and six one-dollar bills. Emma has two 5-dollar bills and five one-dollar bills. Who has more money? How much more?	*Maya;* *$11 more.*
3.	Nick had 3 quarters. He spent 40¢ for a popsicle. How much money did he have left?	*35 cents*
4.	Tracy would like to exchange all her quarters with one-dollar bills. She has a total of 12 quarters. How many one-dollar bills would she get?	*$3*
5.	James had some money. After paying for a puzzle set with four 5-dollar bills, he has $16 left. How much money did he have at first?	*$36*
6.	Before her grandma gave her $10, Sahana had 3 one-dollar bills and 2 five-dollar bills. She cracked open her piggy bank to get additional money needed to purchase the teddy bear and the doll on the display. How much money was on her piggy bank? The cost of the teddy bear and the doll is $19 + $36 = $55. She had $10 + $3 + $5 + $5 = $23. The money in the piggy bank: $55 - $23 = $32	*$32*
7.	Would you rather have 37 quarters or 186 nickels? 37 x $0.25 = $9.25; 186 x $0.05 = $9.30 186 nickels worth more.	*186 nickels*
8.	Sheila said, "I lost 3 coins. I had $5.96. Now I only have 1 five-dollar bill, 2 quarters, 2 dimes, 1 nickel and 1 penny." What coins did Sheila lose? 1 five-dollar bill + 2 quarters + 2 dimes + 1 nickel + 1 penny = $5 + $0.50 + $0.20 + $0.05 + $0.01 = $5.76. $5.96 - $5.76 = $0.20. Since she lost 3 coins worth 20 cents, those coins must be 2 nickels and 1 dime.	*2 nickels and 1 dime.*
9.	Pam has $2.50 in quarters and $0.95 in nickels. How many coins does she have? There are 4 quarters in a dollar, therefore, there are 10 quarters in $2.50. There are 20 nickels in a dollar, therefore, there are 19 nickels in $0.95. Total coins: 10 quarters + 19 nickels = 29 coins	*29*

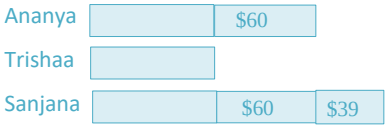
10. Sara went to the mall to buy her family presents. She spent $20.00 of her money on a gift for her mother, then half of her remaining money on a gift for her dad. Sara's last gift, for her brother, cost her $15.00. She left with $10.00. How much money did she start with? *$70*

Hint: Work backward or draw a model

Mom's present $20. Half of the remaining money is dad's present. The other half is $15 +$10 = 25. Sara start with $20 +2×$25 = $70

11. Three friends saved a total of $363. Ananya saved $60 more than Trishaa. Sanjana saved $39 more than Ananya. How much the total amount saved by Sanjana and Trishaa? *$235*

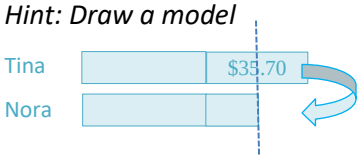
Hint: Draw a model



1 unit is ($363 – ($60+$99)) ÷3 = $68. Sanjana and Trishaa saved: $68 + $68 + $60 + $39 = $235

12. Nora has $14.15 and Tina has $49.85. How much money must Tina give to Nora so that each of them will have the same amount of money? *$17.85*

Hint: Draw a model



The difference in the amount of money is $49.85 - $14.15 = $35.70. In order for them to have the same amount of money, they have to split the difference: $35.70 ÷2 = $17.85

or

The total sum is $14.15+$49.85 = $64. Half of that money is $32.
Tina should give to Nora $49.85 - $32 = $17.85

13. Fifty students have to pay $30 each to charter a bus. If there are only 40 students and the cost to charter a bus remains the same how much will each student need to pay? *$37.50*

The cost to charter a bus: $50 x $30 = $1500.
Since there are only 40 students, therefore, the cost needs to be divided by 40: $1500/40 = $37.50

14. The total cost of 3 bracelets and 3 pairs of earrings is $360. The total cost of 10 bracelets and 2 pairs of earrings is $724. What is the cost of each pair of earrings. *$59.50*

The cost of 1 bracelet and 1 pair of earrings is $360÷3 = $120. So, 10 bracelets and 10 earrings cost $1200
Subtract from it the cost of 10 bracelets and 2 earrings, which is $724, you'll get the cost of 8 earrings = $476
To figure out the cost of 1 earrings: $476 ÷ 8 = $59.50

15. Diane and Julie had the same amount of savings. After Diane spent $4800 from her savings, and Julie spent $3200, Julie had three times as much money left as Diane. How much savings did each one of the have at first? *$5600*

Hint: Draw a model

2 units: $4800 - $3200 = $1600. 1 unit: $1600/2 = $800. Each one had $800 x 3 + $3200 = $5600.

16. In an envelope, there were a total of 400 bills. 40% of them were $5 bills. The rest were $2 bills. Sarah took out some $5 bills. As a result, the remaining $5 bills made up only 20% of the total bills left in the envelope. Find the total value of the $5 bills Sarah took out from the envelope. *$500*

Before Sarah took out some $5 bills,
- the number of $5 bills in the envelope is: 40% of 400 = 40/100 x 400 = 160
- the number of $2 bills in the envelope is: 400 – 160 = 240

After she took out some $5 bills,
- 80% of the bills are $2 bills, which is 240 of them. That means 20% of the bills is 240/4 = 60 bills.
- 60 bills of $5 were left in the envelope. Therefore, Sarah must have taken out 160 -60 = 100.

The value of the $5 bills Sarah took out was: 100 x $5 = $500.

17.	Mr. Ganesh bought 500 oranges at 20 cents each. He threw away 16% of the oranges which were rotten and sold the rest at 6 oranges for $2. How much profit (if any) did he make? *Hint: ask an adult about **profit**.* The cost of 500 oranges: 500 x 20 cents = $100. The number of oranges that he could not sell (rotten): 16/100 x 500 = 80. He sold 500 – 80 = 420 oranges at 6 for $2. There are 70 groups of 6 oranges that he sold at $2 per group. He earned $70 x 2 = $140. Profit: how much he earned – how much it cost him = $140 - $100 = $40	*$40*
18.	Mr. Heinz bought 40 boxes of cupcakes at the price of $12 per box. He gave 30 of these cupcakes to his 4th grade class and sold the rest at $3 each to raise money for the class field trip. After he got reimbursement from paying the total cost of the cupcakes, he made a profit of $270, which is the amount raised for the field trip. Find the number of cupcakes in each box. Cost of the cupcakes: $12 x 40 boxes = $480. If he profited $270, he must have made $ 270 + $480 = $750. Thus, he must have sold $750/$3 = 250 cupcakes. The original number of cupcakes at the beginning was 250 + 30 = 280. Since there were 40 boxes, each box must have 280/40 = 7 cupcakes.	*7 [cupcakes]*

Solution is available on 12/1/2017 at www.mathinaction.org