



SOLUTIONS

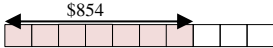
MONEY

Problems in this math challenge provide students with interesting money problems while reinforcing basic money concepts. Students, get your coins out if you need to. Some problems may be easier to solve by using real coins or by drawing the problems out. Good luck!

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

<i>Problems</i>	<i>Answer</i>
1. Mayuka has 3 nickels, and she wants to exchange those nickels with pennies. How many pennies will she get?	15
2. Tom has 35 cents in nickels only. How many nickels does he have?	7 [nickels]
3. Collin needed 7 pencil top erasers. They each cost 10 cents. How much change would Collin get back if he pays with a five-dollar bill?	\$4.30
4. Milo has 4 dimes, and he would like to exchange those dimes with nickels. How many nickels will he get?	8 [nickels]
5. Trisha has \$3.06 in her piggy bank. She has 36 coins in total. If she only has dimes and pennies, how many dimes does she have in her piggy bank?	30
6. Zachary earns \$5.00 per hour for working at his father's pet store. If he works five and a half hours, how much will he earn?	\$27.50
7. Coach Jones bought 2 softballs for \$5.89 each and a bat for \$9.99. He gave the cashier two \$20.00 bills. How much change should he receive? \$40 - (\$5.89 × 2 + \$9.99) = \$18.23	\$18.23
8. Janie traded 18 dimes and 9 nickels for quarters. How many quarters did she get? 18 dimes = \$1.80; 9 nickels = \$0.45. Total value: \$1.80 + \$0.45 = \$2.25. There are 9 quarters in \$2.25.	9
9. Sarah bought a costume for \$7.52. She paid with a \$20 bill. What are the fewest number of bills and coins she could receive as her change? \$12.48, 6 coins and 3 bills	3 bills and 6 coins
10. Nikhil has a Mysterious Money Machine that will double any amount of money placed in it and add \$5.00 to the doubled amount. Yesterday, he placed a certain amount of money in the box, got a new amount, then placed the new amount back in the box. Then he had \$51.00. How much money did he first place in the Mysterious Money Machine? Start with final number and work backwards with opposite operations. 51 - 5 = 46, 46 ÷ 2 = 23, 23 - 5 = 18, 18 ÷ 2 = 9	\$9
11. Which is a better buy: 4 yards of ribbon for 69¢ a yard or 5 yards of ribbon for \$3.25? \$3.25 ÷ 5 = 65¢. 5 yards ribbon is a better buy.	5 yards ribbon

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12.	<p>Kelsea has 12 coins. One-third of her coins are dimes. The value of the dimes is one-fourth the value of the coins. How much money does Kelsea have?</p> <p>4 coins are dimes since one-third of the coins. The value of the dimes is 40 cents. Since 40 cents represent one-fourth of the value of her total coins, then the value of her total coins must be 4×40 cents, which is \$1.60.</p>	\$1.60
13.	<p>How many years would it take you to spend \$1,000,000 if you spend \$25 a day?</p> <p>$\\$1,000,000 \div \\$25 \div 365 = 109 \text{ R } 215 \approx 110$ years</p>	110 [years]
14.	<p>Sam and Sally each have a pocketful of U.S. coins: pennies, nickels, dimes and quarters. Sam has 49 cents while Sally has 43 cents. Neither has a sufficient number of any coin to exchange for a larger value coin. For example, neither has five pennies to exchange for one nickel. What is the fewest number of coins they could have if they combine their coins?</p> <p>Make an organized list for possibilities. Note that each cannot have 5 dimes or more, or 2 nickels or more, etc.</p> <p>Sam (49 cents) Sally (43 cents) 1Q, 2D, 0N, 4P = 7 coins 1Q, 1D, 1N, 3P = 6 coins</p>	13 [coins]
15.	<p>Paula had \$1.20 more than Fred. She spent $\frac{7}{8}$ of her money on a pencil case which cost \$2.80, Fred spent $\frac{1}{4}$ of his money on a pen. How much money did Fred have left?</p> <p>If $\frac{7}{8}$ of Paula's money equals to \$2.80 $\rightarrow \frac{1}{8}$ of Paula's money must equal to $\\$2.80 \div 7 = \\0.40. Therefore, the total amount of her money ($\frac{8}{8}$) is $\\$0.40 \times 8 = \\3.20. Since Paula had \$1.20 more than Fred, Fred must have $\\$3.20 - \\$1.20 = \\$2.00$. The pen cost Fred: $\frac{1}{4} \times \\$2.00 = \\0.50. Thus, he has $\\$2.00 - \\$0.50 = \\$1.50$ left.</p>	\$1.50
16.	<p>Jessica plans to do her holiday shopping early this year. She has saved \$396 to buy gifts for her friends and family. She plans to spend twice as much money, in total, for gifts for her family as she spends on gifts for her friends. Jessica makes a list of 8 friends and 11 family members. She will spend the same amount on each family member and the same amount on each friend. To the nearest cent, how much more will Jessica spend on a family member's gift than she will on a friend's gift?</p> <p>Jessica will spend $\frac{1}{3}$ of her money, $\\$396 \div 3 = \\132, on her friends and twice as much, $2 \times \\$132 = \\264, on her family. If she spends the same amount on each of her 8 friends, she will spend $\\$132 \div 8 = \\16.50 per friend. Similarly, she will spend $\\$264 \div 11 = \\24.00 per family member. Shari will spend $\\$24.00 - \\$16.50 = \\$7.50$ more on each family member's gift than she will on each friend's gift.</p>	\$7.50
17.	<p>The back-to-school sale Books and Pencils Mart offered spiral notebooks for a certain price. Byron bought some spiral notebooks, and the total came to \$3.77 before tax. Monna also bought some spiral notebooks, and her total came to \$2.03 before tax. How many more notebooks did Byron buy than Monna?</p> <p>Note that you can only buy whole numbers of notebooks. The difference of the amount Monna paid and Byron paid is 174 cents. The prime factors of 174 is $2 \times 3 \times 29$. The prime factors of 203 is 7×29. Since 203 has only 7 and 29 as its factors, the price of the notebook must be 29 cents. Therefore, Byron bought 2×3 or 6 more books than Monna. You can also think of the common factor of 377 and 203 and go from there.</p>	6
18.	<p>70% of the amount of money Lisa has in her saving account is \$854.00 Find the total amount of Lisa's saving?</p> <p>If 70% is equivalent to \$854, then 1% $\rightarrow \\$854/70$. Therefore, 100% $\rightarrow \\$854/70 \times 100 = \\1220</p> <p>or  $\\$854 \div 7 = \\122 per 1 unit. Savings 10 units $\rightarrow \\$1,220$</p>	\$1220

Solution is available on 11/17/2017 at www.mathinaction.org

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