

Math Challenge 8

Pockets, Pennies, and other coins

- Two pockets have pennies. One pocket has one penny fewer than the other. Their total number of pennies is the same value as a nickel. How many pennies are in each pocket?
Answer: 2 and 3

- One pocket has pennies. If you double the amount of pennies, they have the same value as a dime. How many pennies are in the pocket?
Answer: 5 [pennies]

- Two pockets have pennies. The sum of the number of pennies in the two pockets is 18. The difference in the number of pennies in the pockets is zero. How many pennies are in each pocket?
Answer: 9 [pennies]

- Four pockets have pennies. There are a different number of pennies in each pocket. The sum of all the pennies is fewer than 11. How many pennies are in each pocket?
Answer: 1, 2, 3, 4

- Two pockets have pennies. The right pocket has 2 more pennies than the left pocket. The right pocket has two times as many pennies as the left pocket. The number of pennies in the right pocket equals double the number of pennies in the left pocket. How many pennies are in each pocket?
Answer: 2 and 4 [pennies]

- Four pockets have pennies. There is the same number of pennies in each pocket. The sum of the number of pennies in all four pockets is more than 16 and less than 24. How many pennies are in each pocket?
Answer: 5 [pennies]

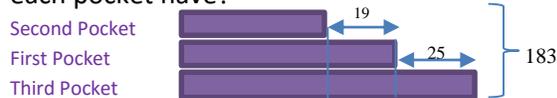
- One pocket has pennies. It has more than 5 pennies in it. The number of pennies in the pocket times itself is less than 50. There are an odd number of pennies in the pocket. How many pennies are in the pocket?
Answer: 7 [pennies]

- Two pockets have pennies. There are a different number of pennies in each pocket. The difference in the number of pennies in the two pockets is 4. The sum of the number of pennies in the two pockets is 10. How many pennies are in each pocket?
Answer: 3 and 7

- Four pockets have pennies. Three pockets have the same number of pennies. One pocket has 1 more penny than the others. The sum of the number of pennies in the four pocket is 21. How many pennies are in each pocket?
Answer: 5, 5, 5, and 6

-  Your pockets are tearing from the weight of all the coins in them. After you unload them onto the kitchen table, you discover something surprising. You have exactly the same number of pennies, nickels, dimes, and quarters, totaling \$6.15. How many of each coin do you have?
Answer: 15 [of each coins]

11. Three pockets have a total of 183 pennies. One pocket has 19 more pennies than the second pocket but 25 fewer pennies than the third pocket. How many pennies does each pocket have?



$$183 - 19 - 19 - 25 = 120$$

3 units = 120 pennies. 1 unit = 40 pennies, which is the number of pennies in the second pocket.

$$\text{First pocket: } 40 + 19 = 59$$

$$\text{Third pocket: } 40 + 19 + 25 = 84$$

Answer:

First pocket: 59

Second pocket: 40

Third pocket: 84

12. Tony has some 20¢ coins and 10¢ coins that add up to \$2 altogether. There are 2 more 10¢ coins than 20¢ coins. How many coins of each type does Tony have?

Let's make the 20¢ and 10¢ be one set of coins. So the value of one set of coins is 30¢.

$$\text{Total value of all the sets of coins} = \$2 - (2 \times 10¢) = 180¢.$$

Number of sets of coins = $180¢ \div 30¢ = 6$, so the number of 20¢ coins is 6.

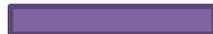
$$\text{The number of 10¢ coins} = 6 + 2 = 8.$$

Answer: 8 10¢ coins and 6 20¢ coins

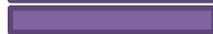
13.  Two very large pockets have pennies – lots of pennies. They both had an equal number of pennies. One pocket had a large hole and lost 75 pennies and the other pocket had a small hole and lost 36 pennies. Now, the pocket with a small hole has 4 times as much money as the other pocket with the large hole. How many pennies were in each pocket at the beginning?

Before

Pocket with a large hole:



Pocket with a small whole:



After

Pocket with a large hole:



Pocket with a small whole:



From the model,

After: Pocket with a large hole has 1 unit. Pocket with a small hole has 4 units.

The difference is $4 - 1 = 3$ units.

The value of 3 units: $75 - 36 = 39$. The value of 1 unit: $39 \div 3 = 13$.

The value of 4 units: $39 + 13 = 52$

Before: - Pocket with a large whole: $75 + 13 = 88$

- Pocket with a small whole: $36 + 52 = 88$

Answer: 88 [pennies]

14. My pocket has pennies. I want to give them all to my sisters. If I gave each sister 4 pennies, I will have 5 pennies left. If I gave each sister 6 pennies instead, I would be three pennies short. How many pennies do I have?

Make a list:

Possible number of sisters	1	2	3	4	5
Possible number of pennies					
Multiple of 4 plus 5:	9	13	17	21	25
Multiple of 6 less 3:	3	9	15	21	27

Answer: 21 [pennies]

Math Challenge 9 will be available online February 12, 2016 at www.mathinaction.org.