

The Hidden Paw Second 50 Puzzles

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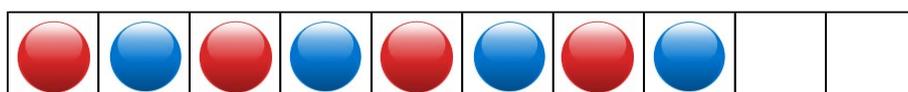
Sample Puzzles

Sample Puzzles from The Hidden Paw's Second 50 Puzzles

(Solutions are found at the end of this document).

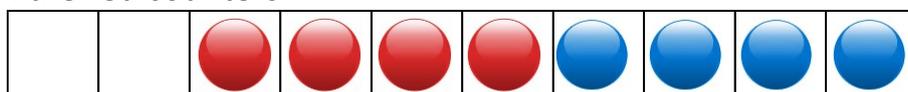
Refer to www.thehiddenpaw.com to read about or purchase this eBook.

Puzzle 57: Shuffle the Colored Counters



On a piece of paper, draw a long rectangle and divide it into 10 squares. Take 4 blue and 4 red counters and place them as shown above. (You can use 8 coins or beans or candy drops).

You are allowed 4 moves only. After that, the blue counters will be together and so will the red counters:



The rule is that you must move 2 counters at a time (they can be of mixed color, of course). Secondly, the 2 counters being moved must be next to one another. For example, you can move counters 1 and 2 and put them in the last 2 empty squares but you cannot move counters 1 and 3 together. Finally, you cannot change the orientation of the counters. If you move counters 1 and 2 with 2 on the right, then 2 must remain on the right in the new position. You are only allowed 4 moves to place all black counters next to one another followed by the 4 whites as shown in the lower rectangle.

Puzzle 61: A Man Digging a Deep Hole

You come across a man digging a hole. He is standing in it. So you ask him, how deep is that hole? He says: "Guess how much . . . but my height is exactly 180 cm". You think that is not enough information. So you pressure him. "How much deeper will you be digging?". He says: "I will be digging twice as deep but then my head will be twice as far below the ground level as it is now above it". How deep will the whole be?



(Another amusing Dudeney puzzle from his “Amusements in Mathematics”).

Puzzle 68: Find the Sum of 9 Days in a Calendar

Take any month in a calendar. Consider a square that contains 3 days in 3 consecutive weeks in any month. For example:

| Sun | Mon | Tue | Wed | Thu | Fri | Sat |
|-----|-----|-----|-----|-----|-----|-----|
| | | 1 | 2 | 3 | 4 | 5 |
| 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| 13 | 14 | 15 | 16 | 17 | 18 | 19 |
| 20 | 21 | 22 | 23 | 24 | 25 | 26 |
| 27 | 28 | 29 | 30 | | | |

Is it possible if you tell me what the smallest number is (9 in this case), that I can immediately tell you what the sum of the numbers in the blue square is? (153 in our case). This would make a good after dinner game.

Solutions

Solution 57: Shuffle the Colored Counters

Here are the steps you can take to arrive at the final pattern:

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---------------------------|---|---|---|---|---|---|---|---|---|----|
| Position at the start | R | B | R | B | R | B | R | B | | |
| After moving 2/3 and 9/10 | R | | | B | R | B | R | B | | R |
| After moving 5/6 to 2/3 | R | R | B | B | | | R | B | B | R |
| After moving 8/9 to 5/6 | R | R | B | B | B | B | R | | | R |
| And 1/2 to 8/9 --- Voila | | | B | B | B | B | R | R | R | R |

If you liked this puzzle, try it with 10 counters on 12 squares but with 5 moves only OR with 12 counters on 14 squares but with 6 moves only.

Solution 61: A Man Digging a Deep Hole

We will avoid algebra but use names to conceptualize the puzzle.

L is the current level of the hole. The hole will be dug to three times this value or $3L$. Let us say the digger's height is H (or 180 cm). Let us also call D the distance of the digger's head above ground level. (After completing digging, his head will be $2D$ below ground level). We now have all variables and 1 constant. We can prepare the following descriptions:

- 1) When the digger was answering the questions, the distance his head was above the ground was $D = H - L$ or $180 - L$.
- 2) When the hole is fully dug, we will have another relationship: $3L = 180 + 2D$. This says that 3 times the depth is equal to the man's height plus 2 times the distance his head was earlier above the ground.

$$3L = 180 + 2D = 180 + 2 \times (180 - L) = 180 + 2 \times 180 - 2L$$

$$3L = 3 \times 180 - 2L$$

$$5L = 540 \text{ so } L = 108.$$

The depth of the hole is therefore $3 \times 108 = 324$ cm. If our digger stands in the hole, his head will be below the ground level by $324 - 180 = 144$.

As a check, when he was answering the questions, he would have been standing on the bottom which was $L = 108$. Since his height = 180, his head would then be 72 cm above the ground which is $1/2$ of 144 as concluded above.

Solution 68: Find the Sum of 9 Days in a Calendar

A calendar is its own calculator. If the first number is A , the next number is $A+1$ and the third is $A+2$. In the second line of the square, the first number is $A+7$ followed by $A+8$ and $A+9$. The third line gives $A+14$, $A+15$ and $A+16$.

Adding the 9 values, we get: $9 \times A + 72$. Once you are given A , swiftly multiply it by 9 and add 72 to it. Voila.