The Great Quiz Book

Logic & Math

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1 Puzzles

2 Mathematics Quizes

Problems

Problem 1 (See)

There is a combination lock with three digits. The clues are the following:

Digits	No. of Correct Digits	Position
964	2	Wrong
286	1	Wrong
147	1	Wrong
189	1	Correct
523	0	NA

What is the correct code?

Problem 2 (See)

A shepherd has to cross a river with a sheep, a wolf and a cabbage. Only two can go on the boat, for example, the shepherd and the sheep. How can they cross the river without the wolf eating the sheep and or the sheep eating the cabbage?

Problem 3 (See)

A sweet seller receives three opaque boxes. One contains mint sweets, another aniseed sweets, another a mixture of mint and aniseed. The boxes have labels, Mint, Aniseed or Mixture but the seller is told that the labels are all wrongly labeled. What is the minimum number of sweets the man has to take out to verify the contents of the boxes?

Problem 4 (See)

Inside a hermetically sealed room, there is a light bulb and outside the room there are three switches. Only one of the switches lights the bulb. While the door is closed, one can press the switches as often as you want. But when the door is open, you have to say which of the 3 switches lights the bulb.

Problem 5 (See)

How can you time 9 minutes using two sand clocks, with one of 4 minutes and the other of 7 minutes?

Problem 6 (See)

A student ask his teacher: how old are your 3 daughters? Teacher: "if you multiply their ages, you get 36. If you add them, you get your house number." The student protests that it can not be solved. The teacher: "You are right, the oldest plays the piano." Now the student can answer the question. How old are the daughters?

Problem 7 (See)

Imagine two identical doors: behind one is heaven, and behind the other is hell. Each door is guarded by a guardian. One of the guardians always tells the truth, while the other always lies. However, one cannot know which is which. By asking only one question to only one of the two guardians, how can one determine which door leads to heaven?
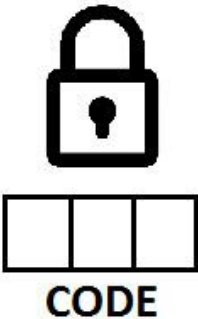
Problem 8 (See Solution 8)

Crack the Code

9	2	8	5	One number is correct but wrong placed.
1	9	3	7	Two numbers are correct but wrong placed.
5	2	0	1	One number is right and well placed.
6	5	0	7	Nothing is correct.
8	5	2	4	Two numbers are correct but wrong placed.

Problem 9 (See Solution 9)

WILL YOU CRACK THE CODE ?

6	8	2	One number is correct and well placed
6	1	4	One number is correct but wrong place
2	0	6	Two numbers are correct but wrong places
7	3	8	Nothing is correct
8	7	0	One number is correct but wrong place

CODE

Problem 10 (See Solution 10)

"I only have sheep, goats and horses. In fact, at the moment they are all sheep bar three, all goats bar four and all horses bar five." How many do I have of each animal?

Problem 11 (See Solution 11)

I add six to eleven, and get five. Why is this correct?

Problem 12 (See Solution 12)

Four people (Abid, Basit, Chisti, and Dawud) want to cross a river in a boat that can only carry 100kg. Abid weighs 90kg, Basit weighs 80kg, Chisti weighs 60kg and Dawud weighs 40kg, and they have 20kg of supplies. How do they get across?

Problem 13 (See Solution 13)

There are two ducks in front of a duck, two ducks behind a duck and a duck in the middle. How many ducks are there?

Problem 14 (See Solution 14)

Five people were eating apples, A finished before B, but behind C. D finished before E, but behind B. What was the finishing order?

Problem 15 (See Solution 15)

Math Problems

Problem 16

The average of 10 numbers is 49. If each of the numbers is divided by 7 and the quotient is then added by 5, what is the changed average number?

Problem 17

Let us call all numbers divisible by 11 'Beautiful Numbers'. What is the difference between the largest and smallest five-digit 'Beautiful Number'?

Problem 18

Using only addition, add eight 8s to get the number 1,000.

Problem 19

What single digit appears most frequently between and including the numbers 1 and 1,000?

Problem 20

What is the smallest 2-digit number that is equal to seven times the sum of its digits?

Problem 21

What is the smallest number that increases by 12 when it is flipped and turned upside-down?

Solutions

Solution 1 (See Problem 1)

$$\boxed{6} \quad \boxed{7} \quad \boxed{9}$$

Logic

(a) 523 are removed by clue no. 5

(b) 1 is removed by clue 3 & 4 (can't be in right and wrong position simulatenously)

(c) 8 is removed by clue 2 & 4 (can't be in right and wrong position simulatenously)

(d) 6 is correct digit by clue 2 (since 2 & are worng)

(e) Position of 6 is 1st (by clue 1 & 2, both worng position)

(f) 9 is the 3rd digit in solution by clue 4 (since 1 & 8 are incorrect)

(g) 4 is removed by clue 1 (since two corret digits are 9 & 6)

(h) The 2nd digit in solution is 7 (by clue 3 and since no other digit exists)

Solution 2 (See Problem 2)

1. Bring sheep

2. Bring back nothing

3. Bring wolf

4. Bring back sheep

5. Bring cabbage

6. Bring back nothing

7. Bring wolf

Solution 3 (See Problem 3)

There are 6 permutations. If all are labeled wrong, then there are only 2 rotations left. Opening one box determines the order.

Solution 4 (See Problem 4)

Light one. Then turn it off. Then light the second one. Go into the room. If the light is off and cold, it was the third one.

Solution 5 (See Problem 5)

Start both sandclocks. Turn the 4 minute clock 4 times, giving 16 minutes. Start counting after the 7 minutes, when the first sand clock is finished

Solution 6 (See Problem 6)

Look at all the products. We have $6*6*1 = 36*1*1 = 18*2*1 = 6*2*3 = 4*3*3 = 9*2*2$ with sums 13,38,21,11,10,13. The sum is ambiguous for $6*6*1$ and $9*2*2$. The last information gives 9,2,2.

Solution 7 (See Problem 7)

"What would the other guardian say if I asked them if this is the door to hell?"

| 3 | 8 | 4 | 1

Solution 8 (See Problem 8)

Explanation

(a) 0 2 5 6 wwong by 4

(b) 1 correct place by 3

(c) 4, 8 correct by 5 (since 2, 5 wrong)

(d) 9 wrong by 1 (since only one correct, which is 8)

(e) place of 8 is 2nd since it can't take 1st by clue 5, not 3rd by 1st clue, and not 4th by clue 3

(f) place of 3 is 1st (since it can't be on 2nd (8), 3rd (wrong) or 4th (1))

Solution 9 (See Problem 9)

| 0 | 4 | 2

Explanation

1. 0 correct by clue 5 (since 7, 8 wrong)

2. 6 wrong by 1 & 2 (can't be on wrong and right place simultaneously)

3. 2 in 3rd place by 1 (since 6, 8 wrong), which puts 0 to 1st place (can't be on 2nd or 3rd)

4. We have to find 2nd digit, which is 4 since only other option 1 can't be on 2nd place

Solution 10 (See Problem 10)

Three sheep, two goats and one horse

Solution 11 (See Problem 11)

When it is 11 a.m., adding six hours makes it 5 p.m.

Solution 12 (See Problem 12)

Go	Return	Stay on Other Side	Stay on this Side
60+40	40	60	20, 40, 80, 90
90	60	90	20, 40, 60, 80
60+40	40	60, 90	20, 40, 80
80+20	60	20, 80, 90	40, 60
40+60	-	20, 40, 60, 80, 90	-

Solution 13 (See Problem 13)

Three. Two ducks are in front of the last duck; the first duck has two ducks behind; one duck is between the other two.

Solution 14 (See Problem 14)

CABDE

Solution 15 (See Problem 15)

Math Solutions

Solution 16 (See Problem 16)

$$\frac{49}{7} + 5 = 12$$

Solution 17 (See Problem 17)

Largest: 99990
Smallest: 11110
Difference: 88880

Solution 18 (See Problem 18)

$888 + 88 + 8 + 8 + 8 = 1,000$

Solution 19 (See Problem 19)

The most common digit is 1! Every number 1–9 appears exactly the same number of times in every ten numbers. But because we included the number 1,000, there's an extra occurrence of the number 1. In total, the number 1 appears 301 times, and every other number appears 300 times.

Solution 20 (See Problem 20)

$10a + b = 7(a + b)$, then $10a + b = 7a + 7b$, and so $3a = 6b$, or, more simply, $a = 2b$. That is, the second digit must be twice the first. The smallest such number is 21.

Solution 21 (See Problem 21)

The answer is 86. When it is turned upside-down and flipped, it becomes 98, which is 12 more than 86.

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