

Fox, Chicken and Corn

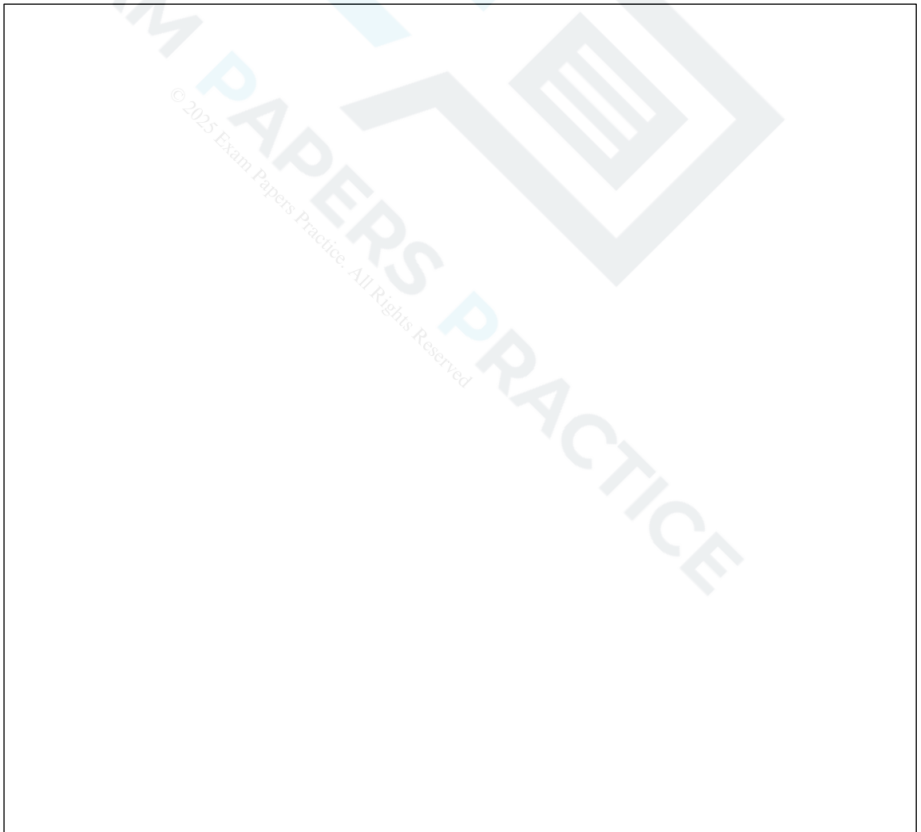
You need to get a fox, a chicken and a sack of corn across a river. You can only take 1 item across at a time. You cannot leave the fox and the chicken together because the fox will eat the chicken, if the you are not there. You cannot leave the chicken and the sack of corn together otherwise the chicken will eat the corn, if you are not there. How do you do it?

EXAM PAPERS PRACTICE
© 2025 Exam Papers Practice. All Rights Reserved

The instructions are exactly the same but in a different order and the shape drawn will be different. Can you draw the two shapes?

1. forward 50 steps
2. turn left 90 degrees
3. forward 50 steps
4. forward 50 steps
5. turn left 90 degrees
6. turn left 90 degrees
7. turn left 90 degrees
8. forward 50 steps

1. forward 50 steps
2. forward 50 steps
3. turn left 90 degrees
4. turn left 90 degrees
5. turn left 90 degrees
6. turn left 90 degrees
7. forward 50 steps
8. forward 50 steps



Die Hard

In the movie "Die Hard with a Vengeance" there is a riddle that requires algorithmic sequencing. Bruce Willis and Samuel L. Jackson are given a 3 litre vessel and a 5 litre vessel neither of which have any markings. They need to measure out *exactly* 4 litres of water to prevent a bomb going off in 30 seconds. How do they achieve this?



Logical Reasoning 1

Statements: Barney is older than Chloe

Doris is older than Barney

Conclusion: Doris is older than Chloe

Is the conclusion true or false?

Logical Reasoning 2

Statements: All teachers eat cake

Mr Green is a teacher

Conclusion: Mr Green does not eat cake

Is the conclusion true or false?

Mexican Standoff

You find yourself in a three-way Mexican standoff. You have a 1 in three chance of shooting an opponent. The second opponent, Peter has a 2 in three chance and Homer the third opponent has a 100 percent hit rate. Because you are the worst shot you get to go first. Peter gets to go second and Homer third. Everyone can think perfectly logically and each is aware of the others' shooting capabilities. Explain what your best strategy is to be the last one standing.

EXAM PAPERS PRACTICE
© 2025 Exam Papers Practice. All Rights Reserved

Counter Hopping

- ✓ Swap around the red and blue counters.
- ✓ You can only move into an empty space or jump a counter of an opposite colour.
- ✓ You cannot move counters backwards
- ✓ Use coins to help you
- ✓ Break the problem down and try with fewer counters to start



EXAM PAPERS PRACTICE
© 2025 Exam Papers Practice. All Rights Reserved

Towers of Hanoi

- ✓ Move the disks from one peg to either of the other two pegs.
- ✓ A larger disk cannot be placed on top of a smaller disk
- ✓ How many moves does it take?



EXAM PAPERS PRACTICE
© 2025 Exam Papers Practice. All Rights Reserved

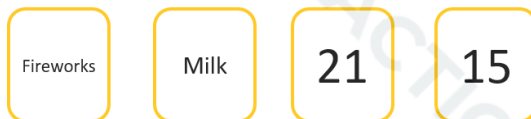
Card Turning 1

- ✓ You are shown the four cards below.
- ✓ Every card has a number on one side and a letter on the other.
- ✓ Every card that has a vowel on one side has an even number on its opposite side.
- ✓ Explain which card(s) you need to turn over prove that the vowels even rule is true?



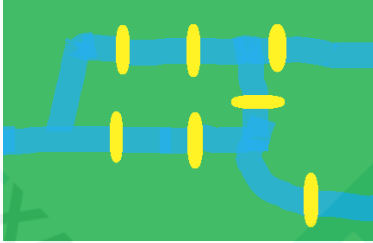
Card Turning 2

- ✓ You are shown the four cards below.
- ✓ Every card has the age of a customer and what they are purchasing.
- ✓ To purchase fireworks the customer needs to be 18 or over.
- ✓ Explain which card(s) you need to turn over verify that customer purchases are legal?



Konigsberg bridge problem

Is it possible to cross all bridges but only crossing each bridge once?

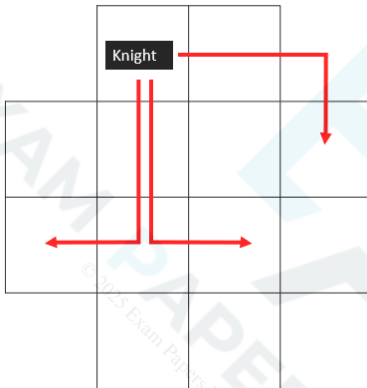


EXAM PAPERS PRACTICE
© 2025 Exam Papers Practice. All Rights Reserved

Knights Tour

Get the knight to visit all squares on the board once.

A knight can move two squares horizontally and 1 square vertically or two squares vertically and one square horizontally.



Balance Scales

You have 8 balls and a set of balance scales. Seven of them weigh the same. One of them is heavier. How do you find the odd ball with 2 weighings?



Extension: Balance Scales

You have 12 balls and a set of scales. 11 of them weigh the same. 1 of them has a different weight, (you don't know if it's heavier or lighter). How do you find the odd ball with 3 weighings?



Sudoku

Each row, column and 3 by 3 box must contain the numbers 1-9 without repeats.

	3	5	2	9		8	6	4
	8	2	4	1		7		3
7	6	4	3	8			9	
2	1	8	7	3	9		4	
			8		4	2	3	
	4	3		5	2	9	7	
4		6	5	7	1			9
3	5	9		2	8	4	1	7
8			9			5	2	6