



Neurological Nasties IX

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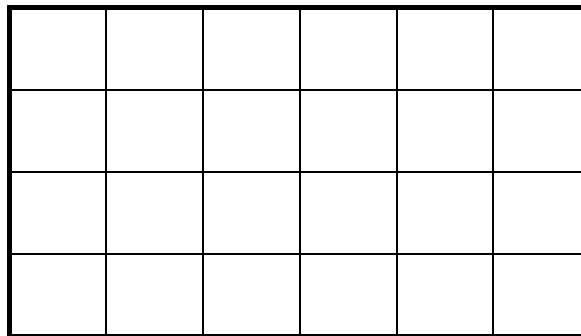


1. Find the product of the following:

$$(x - a)(x - b)(x - c) \dots (x - z)$$

2. The milkman had 18 cartons of milk left in his crate when he finished his round. He was surprised to see that these cartons formed an interesting arrangement in the crate. Each row and each column of the crate held an even number of cartons.

What arrangement of cartons might the milkman have seen ?



3. Three jugs have the capacity for 8, 5 and 3 litres respectively. The 8 litre jug is filled entirely with water and the other two jugs are empty. Your task is, by decanting, to divide the water into two equal parts, that is, 4 litres in jug A and 4 litres in jug B, leaving the smallest jug empty. None of the jugs are calibrated so the only way the task can be successfully performed is to pour water from one jug to another until the first jug is entirely empty or the second jug is entirely full. You must assume that the decanting is done with great care so that no water is spilled.

What is the least number of decantings in which the task can be achieved ? Explain how this is done.

