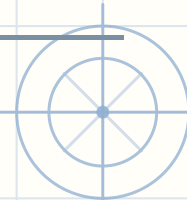


Worst-case puzzles — Medium drawers

Name: _____

Date: _____



Say how you know your number is always enough, however the picking goes.

- 1 A drawer holds 10 red socks, 5 blue socks and 9 green socks, all mixed up. The light is off, so you cannot see what you are taking.

How many socks must you take to be sure of a matching pair?

Why

.....

.....

.....

- 2 A drawer holds 7 red gloves and 10 blue gloves, jumbled together in the dark.

How many must you take to be sure of two red ones?

Why

.....

.....

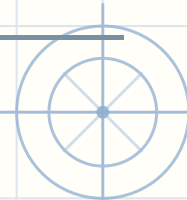
.....



Worst-case puzzles — Medium drawers

Name: _____

Date: _____



Say how you know your number is always enough, however the picking goes.

- 3 A drawer holds 7 red gloves, 6 blue gloves and 12 green gloves, jumbled together in the dark.

How many must you take to be sure of two red ones?

Why

.....

.....

.....

- 4 A bag holds 5 red beads, 10 blue beads and 11 green beads. You reach in without looking.

How many beads must you take to be sure two of them match?

Why

.....

.....

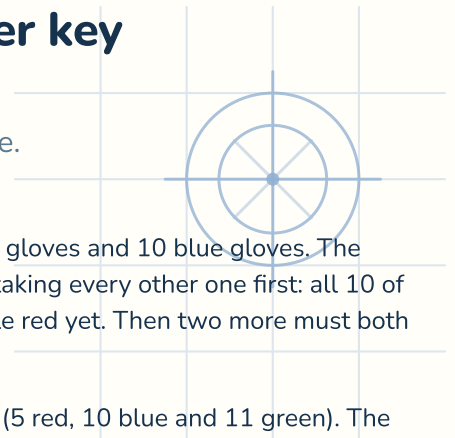
.....



Worst-case puzzles · Medium drawers — Answer key

If they are stuck

- Do not count the cases — ask what the unluckiest possible run looks like.



1. There are 3 colors here (10 red, 5 blue and 9 green). The worst that can happen is taking one of each — 3 socks and still no pair. The next one has to match something, so $3 + 1 = 4$. Notice the counts never came into it.

3. The drawer holds 7 red gloves, 6 blue gloves and 12 green gloves. The worst that can happen is taking every other one first: all 18 of the others, and not a single red yet. Then two more must both be red, so $18 + 2 = 20$.

2. The drawer holds 7 red gloves and 10 blue gloves. The worst that can happen is taking every other one first: all 10 of the others, and not a single red yet. Then two more must both be red, so $10 + 2 = 12$.

4. There are 3 colors here (5 red, 10 blue and 11 green). The worst that can happen is taking one of each — 3 beads and still no pair. The next one has to match something, so $3 + 1 = 4$. Notice the counts never came into it.