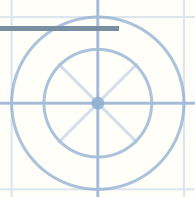


Worst-case puzzles — Medium drawers

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 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.

4

-
- 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

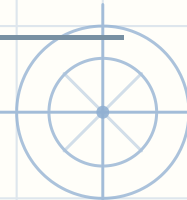
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Worst-case puzzles — Medium drawers

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

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- 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

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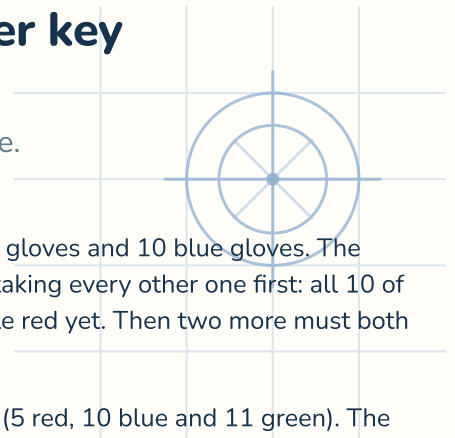
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Worst-case puzzles · Medium drawers — Answer key

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.