



TIMO practice: Picking marbles to be sure (with solutions)

12 problems · Grade 1, 2, 3 · answers and solutions at the end

Name _____

Date _____



Practise this type in the Karotto app, with questions read aloud and hints when stuck. Scan the code or visit playkarotto.com

Grade 1

- 1 A box has 3 red marbles and 4 blue marbles. Without looking, what is the smallest number of marbles you must take out to be sure to get 1 red marble?



Answer: _____

- 2 A box has 3 red marbles and 4 blue marbles. Without looking, what is the smallest number of marbles you must take out to be sure to get 2 of the same colour?



Answer: _____

- 3 A box has 6 red marbles and 3 blue marbles. Without looking, what is the smallest number of marbles you must take out to be sure to get 1 red marble?



Answer: _____

- 4 A box has 3 red marbles and 6 blue marbles. Without looking, what is the smallest number of marbles you must take out to be sure to get 2 of the same colour?



Answer: _____

Grade 2

- 5 A box has 2 red marbles and 9 blue marbles. Without looking, what is the smallest number of marbles you must take out to be sure to get 1 red marble?



Answer: _____

- 6 A box has 6 red marbles and 2 blue marbles. Without looking, what is the smallest number of marbles you must take out to be sure to get 1 red marble?



Answer: _____

- 7 A box has 2 red marbles and 12 blue marbles. Without looking, what is the smallest number of marbles you must take out to be sure to get both colours?



Answer: _____

- 8 A box has 12 red marbles and 6 blue marbles. Without looking, what is the smallest number of marbles you must take out to be sure to get 1 red marble?



Answer: _____

Grade 3

- 9 A box has 6 red marbles, 2 blue marbles and 12 yellow marbles. Without looking, what is the smallest number of marbles you must take out to be sure to get 2 of the same colour?



Answer: _____

- 10 A box has 17 red marbles and 12 blue marbles. Without looking, what is the smallest number of marbles you must take out to be sure to get 2 red marbles?



Answer: _____

- 11 A box has 6 red marbles, 19 blue marbles and 3 yellow marbles. Without looking, what is the smallest number of marbles you must take out to be sure to get 2 of the same colour?



Answer: _____

- 12 A box has 3 red marbles and 18 blue marbles. Without looking, what is the smallest number of marbles you must take out to be sure to get both colours?



Answer: _____

Answers and solutions: Picking marbles to be sure

1. Answer: 5 · Grade 1

How to think: Think of the unluckiest case: the marbles you take out are never the ones you want.

Solution: The unluckiest case: you take out all 4 blue marbles first, then the next one is sure to be red: 4 plus 1 equals 5 marbles.

2. Answer: 3 · Grade 1

How to think: Think of the unluckiest case: the marbles you take out are never the ones you want.

Solution: The unluckiest case: the first 2 marbles are all different colours. The next one is sure to match one of them: 2 plus 1 equals 3 marbles.

3. Answer: 4 · Grade 1

How to think: Think of the unluckiest case: the marbles you take out are never the ones you want.

Solution: The unluckiest case: you take out all 3 blue marbles first, then the next one is sure to be red: 3 plus 1 equals 4 marbles.

4. Answer: 3 · Grade 1

How to think: Think of the unluckiest case: the marbles you take out are never the ones you want.

Solution: The unluckiest case: the first 2 marbles are all different colours. The next one is sure to match one of them: 2 plus 1 equals 3 marbles.

5. Answer: 10 · Grade 2

How to think: Think of the unluckiest case: the marbles you take out are never the ones you want.

Solution: The unluckiest case: you take out all 9 blue marbles first, then the next one is sure to be red: 9 plus 1 equals 10 marbles.

6. Answer: 3 · Grade 2

How to think: Think of the unluckiest case: the marbles you take out are never the ones you want.

Solution: The unluckiest case: you take out all 2 blue marbles first, then the next one is sure to be red: 2 plus 1 equals 3 marbles.

7. Answer: 13 · Grade 2

How to think: Think of the unluckiest case: the marbles you take out are never the ones you want.

Solution: The unluckiest case: you first take out all 12 marbles of the colour there are more of, then the next one is sure to be the other colour: 12 plus 1 equals 13 marbles.

8. Answer: 7 · Grade 2

How to think: Think of the unluckiest case: the marbles you take out are never the ones you want.

Solution: The unluckiest case: you take out all 6 blue marbles first, then the next one is sure to be red: 6 plus 1 equals 7 marbles.

9. Answer: 4 · Grade 3

How to think: Think of the unluckiest case: the marbles you take out are never the ones you want.

Solution: The unluckiest case: the first 3 marbles are all different colours. The next one is sure to match one of them: 3 plus 1 equals 4 marbles.

10. Answer: 14 · Grade 3

How to think: Think of the unluckiest case: the marbles you take out are never the ones you want.

Solution: The unluckiest case: you take out all 12 blue marbles first, then 2 red ones: 12 plus 2 equals 14 marbles.

11. Answer: 4 · Grade 3

How to think: Think of the unluckiest case: the marbles you take out are never the ones you want.

Solution: The unluckiest case: the first 3 marbles are all different colours. The next one is sure to match one of them: 3 plus 1 equals 4 marbles.

12. Answer: 19 · Grade 3

How to think: Think of the unluckiest case: the marbles you take out are never the ones you want.

Solution: The unluckiest case: you first take out all 18 marbles of the colour there are more of, then the next one is sure to be the other colour: 18 plus 1 equals 19 marbles.
