



TIMO practice: Cutting cakes, drawing lines (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 You cut a round cake with 4 straight cuts, and every cut goes through the middle. How many pieces do you get?



Answer: _____

- 2 You cut a round cake with 2 straight cuts, and every cut goes through the middle. How many pieces do you get?



Answer: _____

- 3 You cut a round cake with 3 straight cuts, and every cut goes through the middle. How many pieces do you get?



Answer: _____

- 4 You cut a round cake with 5 straight cuts, and every cut goes through the middle. How many pieces do you get?



Answer: _____

Grade 2

- 5 You cut a round cake with 7 straight cuts, and every cut goes through the middle. How many pieces do you get?



Answer: _____

- 6 Draw 2 straight lines on a sheet of paper. At most how many parts can the lines split the paper into?



Answer: _____

- 7 You cut a round cake with 3 straight cuts, and every cut goes through the middle. How many pieces do you get?



Answer: _____

- 8 Draw 3 straight lines on a sheet of paper. At most how many parts can the lines split the paper into?



Answer: _____

Grade 3

- 9 Draw 4 straight lines on a sheet of paper. At most how many parts can the lines split the paper into?



Answer: _____

- 10 You want to cut a round cake into 6 pieces with straight cuts through the middle. How many cuts do you need?



Answer: _____

- 11 You want to cut a round cake into 14 pieces with straight cuts through the middle. How many cuts do you need?



Answer: _____

- 12 You want to cut a round cake into 20 pieces with straight cuts through the middle. How many cuts do you need?



Answer: _____

Answers and solutions: Cutting cakes, drawing lines

1. Answer: 8 · Grade 1

How to think: The first cut makes 2 pieces. How many more does each new cut add?

Solution: Each cut through the middle gives 2 pieces. 4 cuts give $2 + 2 + 2 + 2$, which is 8 pieces.

2. Answer: 4 · Grade 1

How to think: The first cut makes 2 pieces. How many more does each new cut add?

Solution: Each cut through the middle gives 2 pieces. 2 cuts give $2 + 2$, which is 4 pieces.

3. Answer: 6 · Grade 1

How to think: The first cut makes 2 pieces. How many more does each new cut add?

Solution: Each cut through the middle gives 2 pieces. 3 cuts give $2 + 2 + 2$, which is 6 pieces.

4. Answer: 10 · Grade 1

How to think: The first cut makes 2 pieces. How many more does each new cut add?

Solution: Each cut through the middle gives 2 pieces. 5 cuts give $2 + 2 + 2 + 2 + 2$, which is 10 pieces.

5. Answer: 14 · Grade 2

How to think: The first cut makes 2 pieces. How many more does each new cut add?

Solution: Each cut through the middle gives 2 pieces. 7 cuts give $2 + 2 + 2 + 2 + 2 + 2 + 2$, which is 14 pieces.

6. Answer: 4 · Grade 2

How to think: With no lines there is 1 part. The first line makes 2 parts.

Solution: We start with 1 part. The first line adds 1, the second adds 2, the third adds 3, and so on. The number of parts goes 1, 2, 4. So 2 lines make at most 4 parts.

7. Answer: 6 · Grade 2

How to think: The first cut makes 2 pieces. How many more does each new cut add?

Solution: Each cut through the middle gives 2 pieces. 3 cuts give $2 + 2 + 2$, which is 6 pieces.

8. Answer: 7 · Grade 2

How to think: With no lines there is 1 part. The first line makes 2 parts.

Solution: We start with 1 part. The first line adds 1, the second adds 2, the third adds 3, and so on. The number of parts goes 1, 2, 4, 7. So 3 lines make at most 7 parts.

9. Answer: 11 · Grade 3

How to think: With no lines there is 1 part. The first line makes 2 parts.

Solution: We start with 1 part. The first line adds 1, the second adds 2, the third adds 3, and so on. The number of parts goes 1, 2, 4, 7, 11. So 4 lines make at most 11 parts.

10. Answer: 3 · Grade 3

How to think: The first cut makes 2 pieces. How many more does each new cut add?

Solution: Each cut through the middle gives 2 pieces. 3 plus 3 is 6, so you need 3 cuts.

11. Answer: 7 · Grade 3

How to think: The first cut makes 2 pieces. How many more does each new cut add?

Solution: Each cut through the middle gives 2 pieces. 7 plus 7 is 14, so you need 7 cuts.

12. Answer: 10 · Grade 3

How to think: The first cut makes 2 pieces. How many more does each new cut add?

Solution: Each cut through the middle gives 2 pieces. 10 plus 10 is 20, so you need 10 cuts.
