MATHEMATICS · GRADES 7-9

Histograms

Difficulty level: Intermediate

Mathematics: Grades 7-9

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Overview of the concept

This is how you picture a crowd of numbers in ranges, like heights in a class or wait times at a clinic, so you can see where most of them cluster. A histogram groups numbers into ranges and shows how many fall in each one, so the shape of the whole crowd is visible at a glance. A teacher uses it to see how a class spread out on a test, a clinic uses it to see how long patients usually wait, and a shop uses it to see which ages its customers mostly are.



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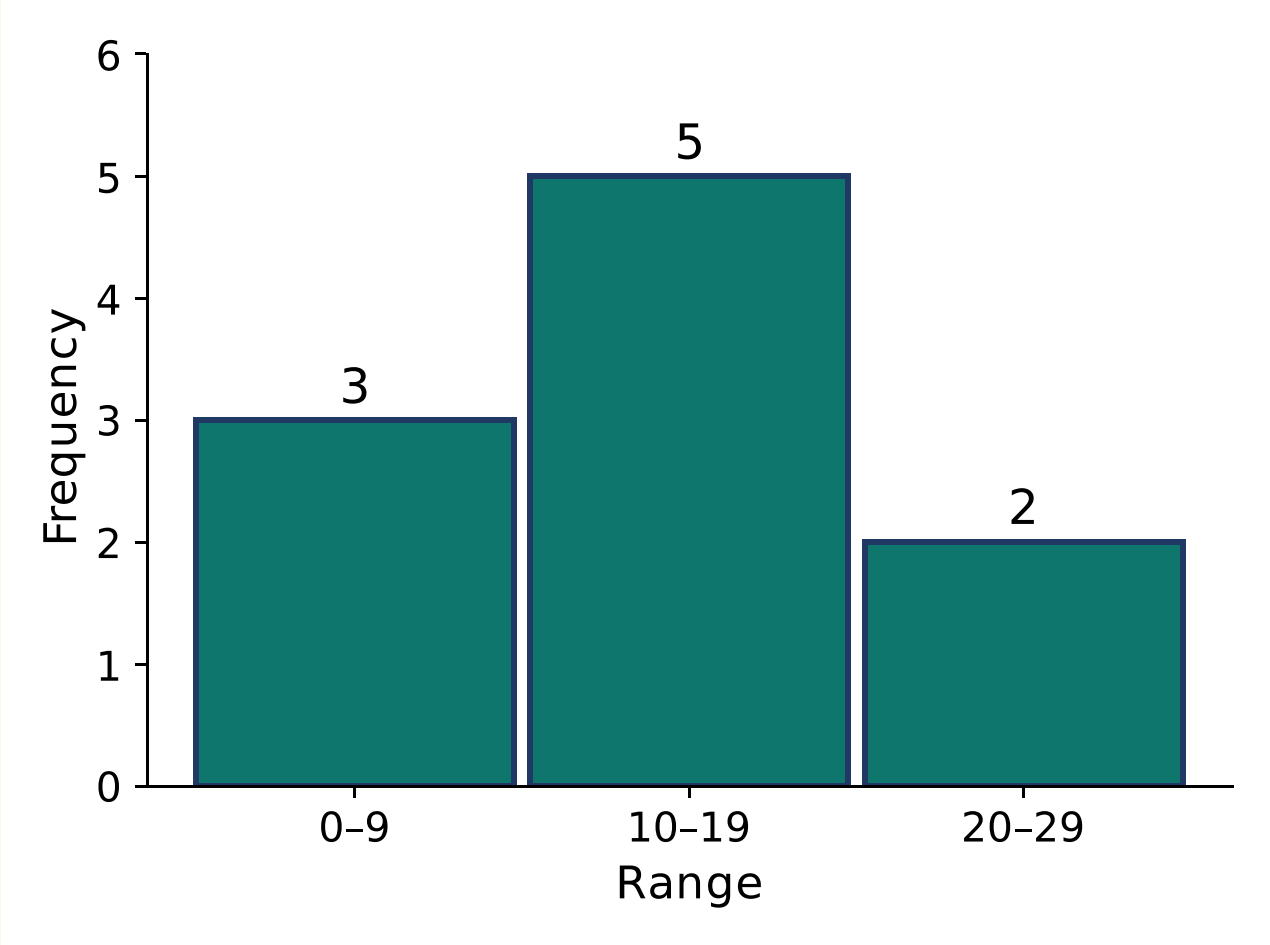
Worked examples

EXAMPLE 1

Q Draw a histogram for ranges 0 to 9 (3 values), 10 to 19 (5 values), 20 to 29 (2 values)



SOLUTION

Put the ranges along the horizontal axis, with no gaps between bars.

Put frequency up the vertical axis.

Draw bars of heights 3, 5, and 2, touching each other.

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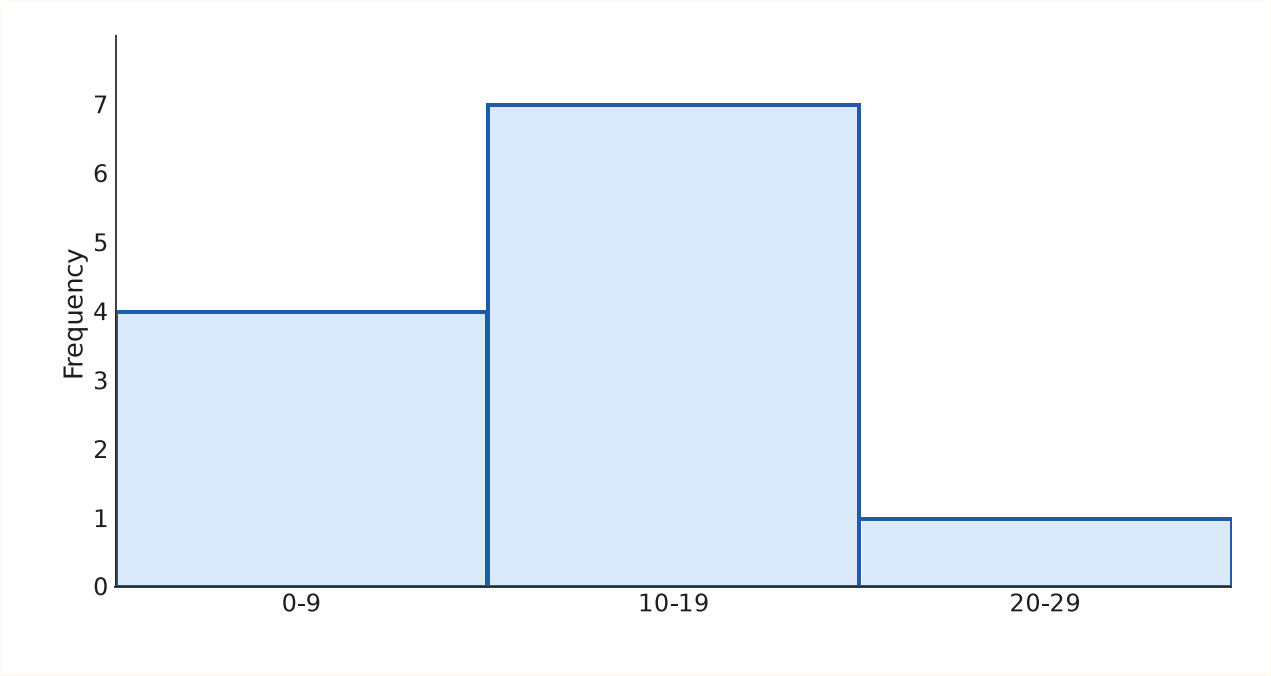
EXAMPLE 2

Q Read a histogram bars 0 to 9: 4, 10 to 19: 7, 20 to 29: 1. Which range is most common?



SOLUTION

Compare bar heights: 4, 7, and 1

The tallest bar is 7, for 10 to 19.

The range 10 to 19 is most common.

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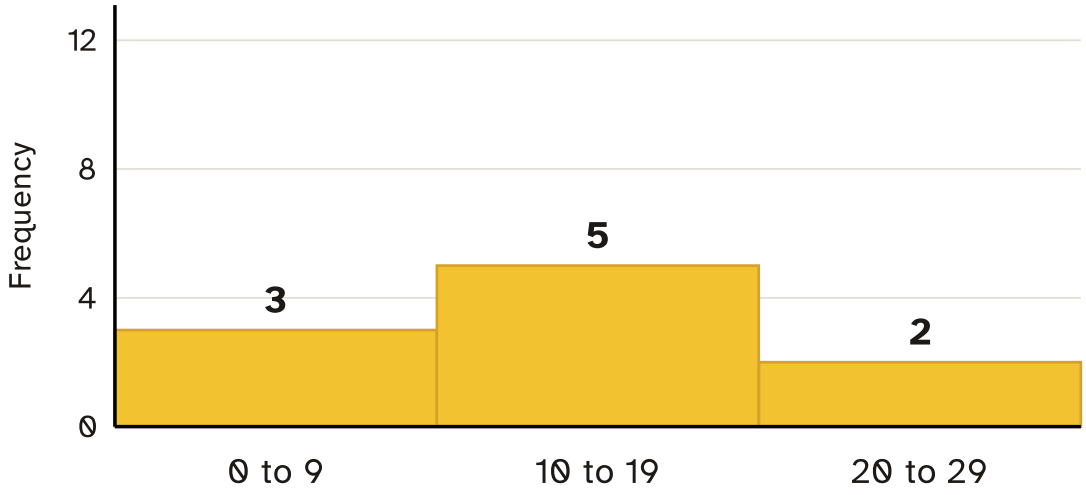
Practice questions

1 Read the three bar heights.



A 3, 5 and 2

B 2, 5 and 3

C 5, 3 and 2

D 3, 2 and 5

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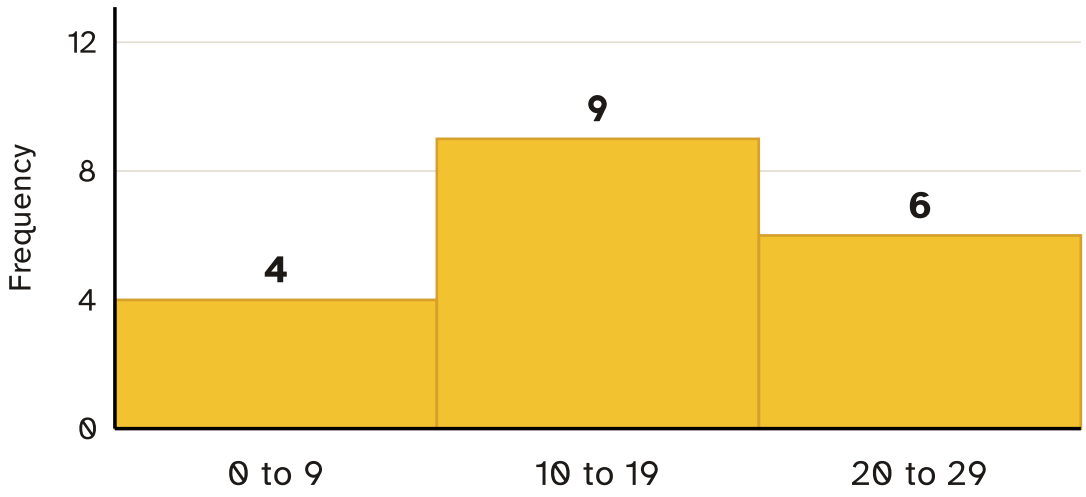
2 Which age range has the most members?



A 0 to 9

B 10 to 19

C 20 to 29

D 30 to 39

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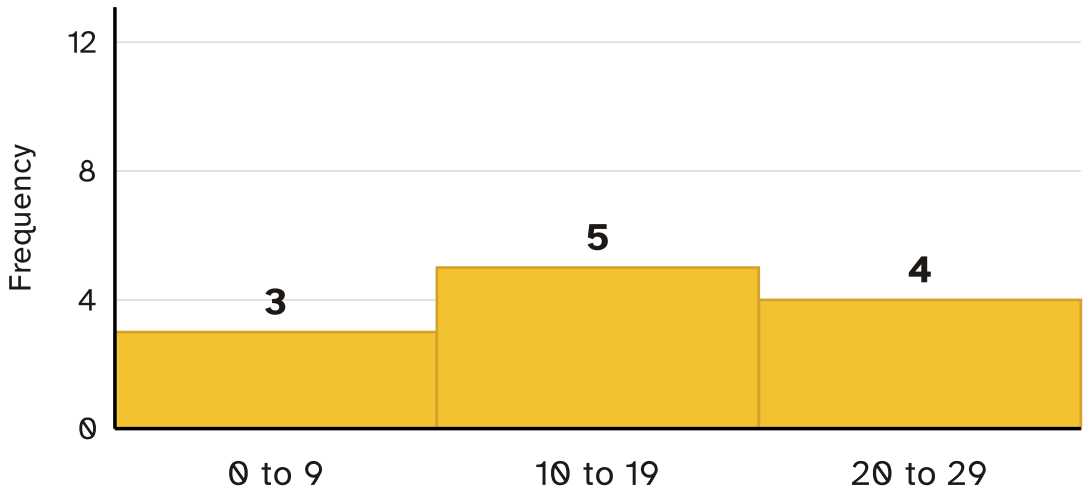
3

How many values are there in total?



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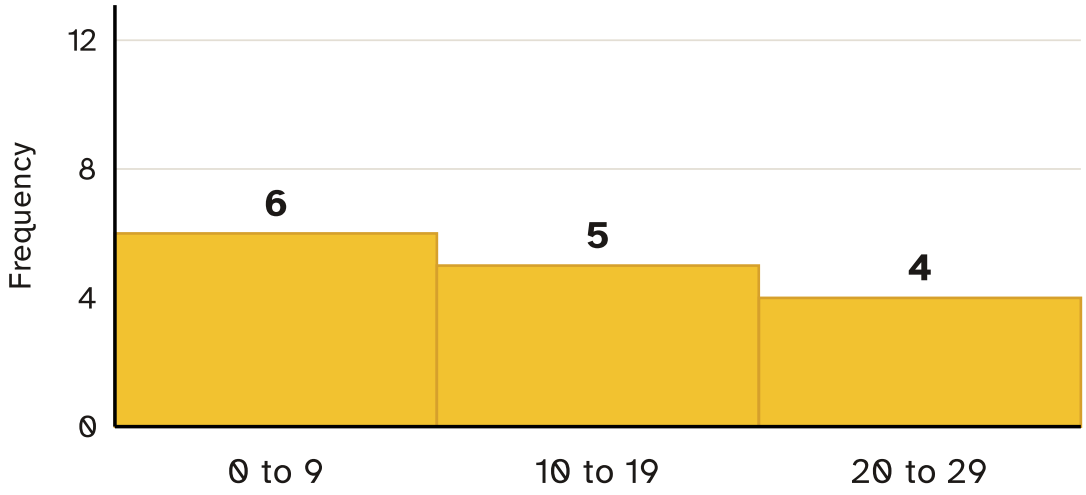
4 How many more values are in the 0 to 9 range than in the 20 to 29 range?



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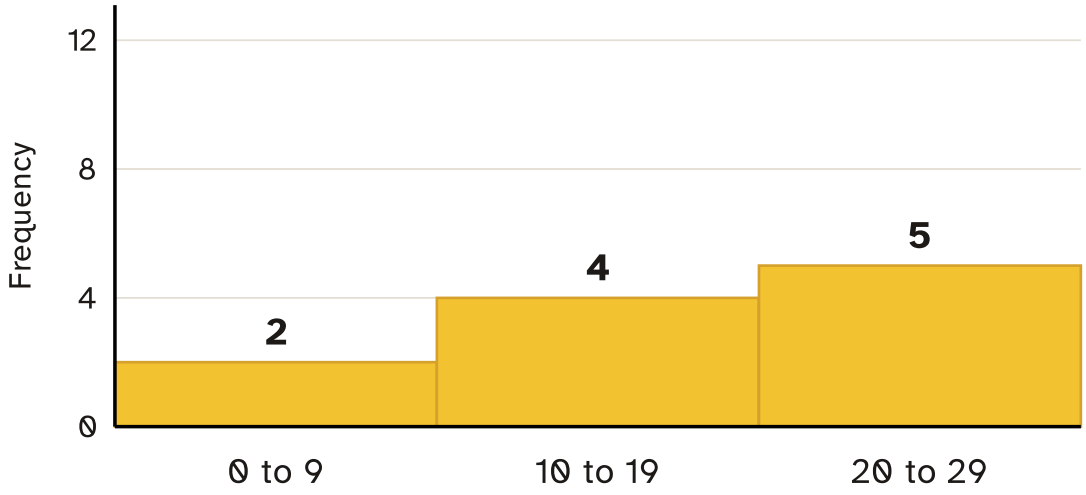
5 How many more values are in the 20 to 29 range than in the 0 to 9 range?



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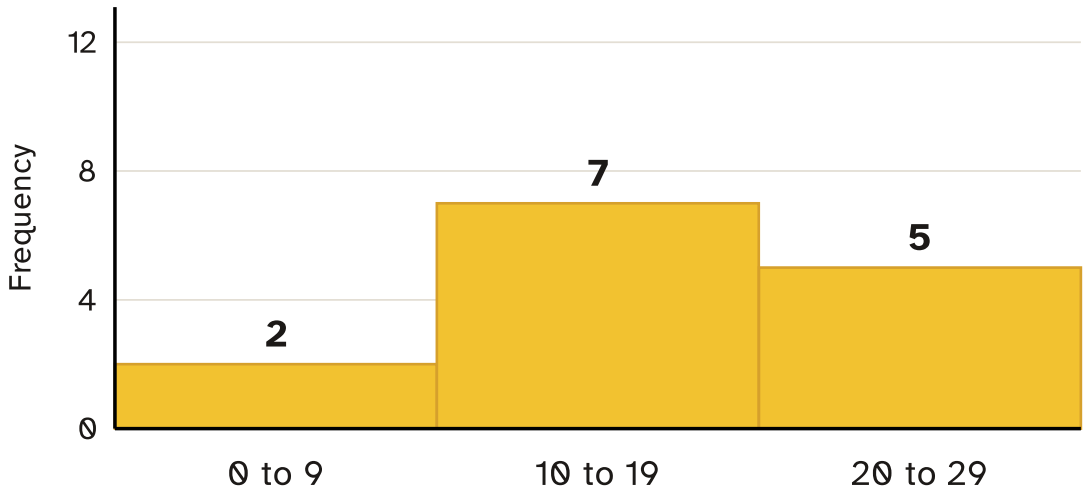
6 Which age range has the fewest riders?



A 0 to 9

B 10 to 19

C 20 to 29

D 30 to 39

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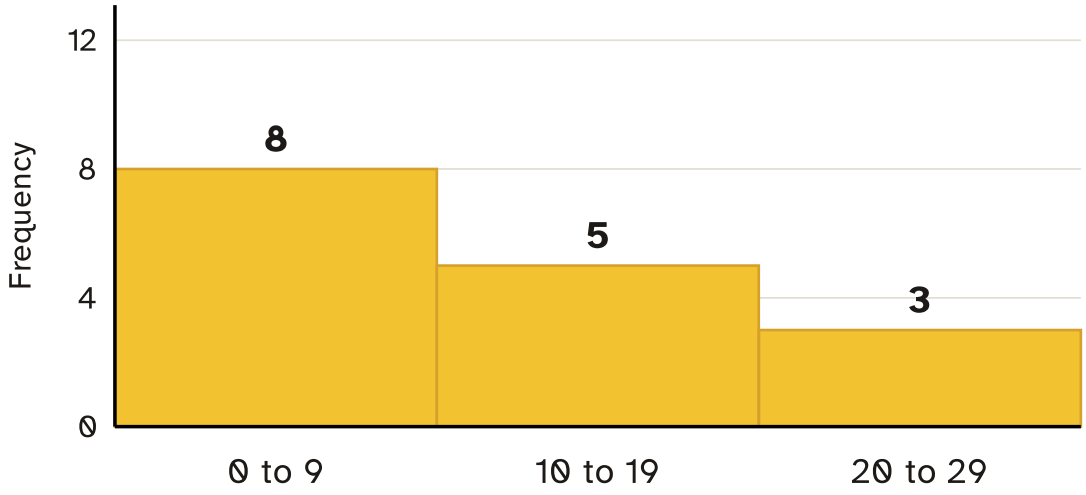
7 If 2 more students join the 20 to 29 range, how many would be in that range?



A 3

B 5

C 7

D 10

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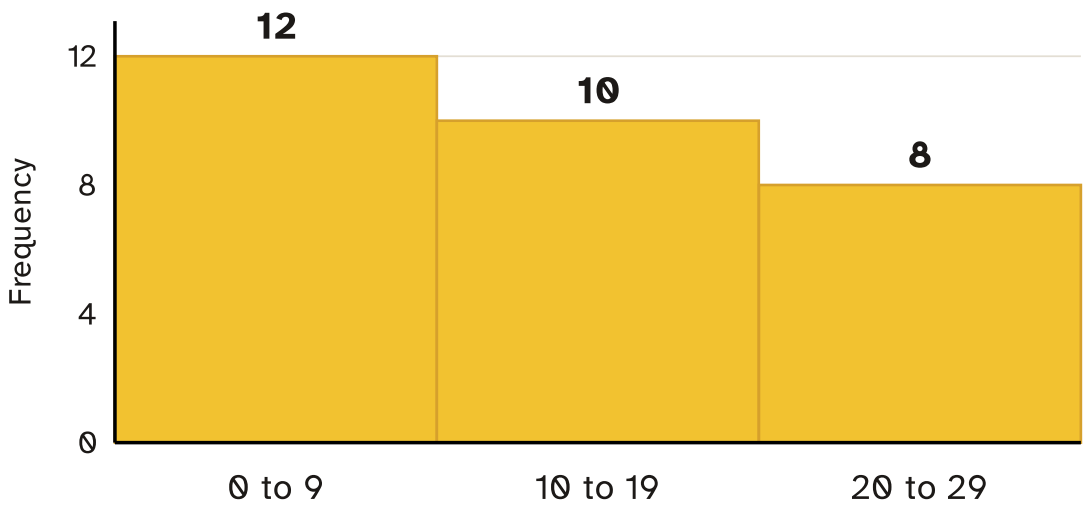
8 What is the difference between the tallest bar and the shortest bar?



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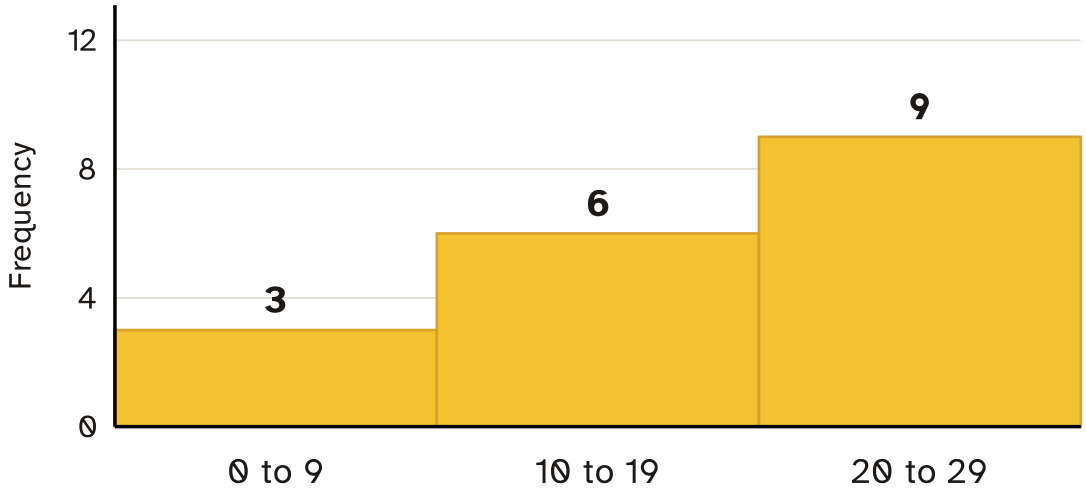
9 How many values are in the 0 to 9 and 10 to 19 ranges combined?



A 9

B 12

C 15

D 18

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10 **In a histogram, should the bars touch each other or have gaps between them?**

A Touch

B Gaps

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ANSWER KEY

1. 3, 5 and 2

2. 10 to 19

3. 12

4. 2

5. 3

6. 0 to 9

7. 5

8. 4

9. 9

10. Touch

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