

Graph Matchup

Compare matching datasets across actual displays

GRADE 7 • 7.PS.2.f

7.PS.2.f "Compare data represented in histograms with the same data represented in other graphs, including but not limited to line plots (dot plots), circle graphs, and stem-and-leaf plots..."

NAME _____

DATE _____

BUILD UNDERSTANDING

Histograms show groups; dot plots and stem-and-leaf plots retain exact values. Circle graphs show shares of a whole. Choose a display to suit the question.

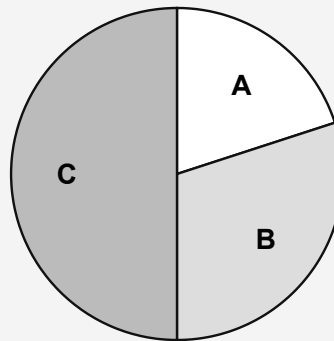
WORKED EXAMPLE

This circle shows 20 separate practice logs.
How many logs are in the 10-19 minute interval?

1. Read 30% from the middle interval.
2. Multiply 0.30 by the total, 20.

Answer: Six logs: 30% of 20 is 6.

Worked logs

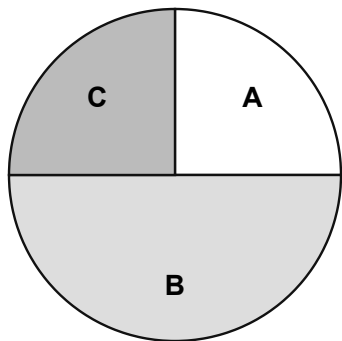


- A. 0-9 min: 20%
- B. 10-19 min: 30%
- C. 20-29 min: 50%

Total: 20 responses

PRACTICE 4 problems

- 1** This circle and the histogram in Practice 2 show the same 16 new reading logs. Which display emphasizes the fraction in 10-19 minutes? Give that fraction.

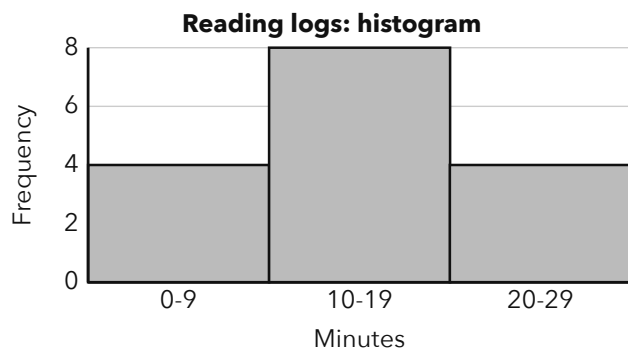
Reading logs

- A. 0-9 min: 25%
B. 10-19 min: 50%
C. 20-29 min: 25%

Total: 16 responses

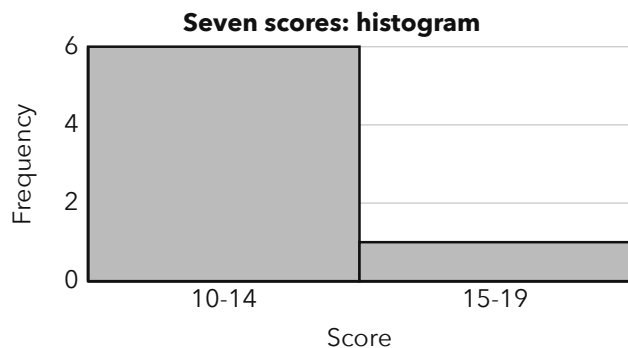
ANSWER _____

- 2** Compare this histogram with the circle in Practice 1. Which shows the peak interval more directly? Give its frequency and explain how it matches the circle.



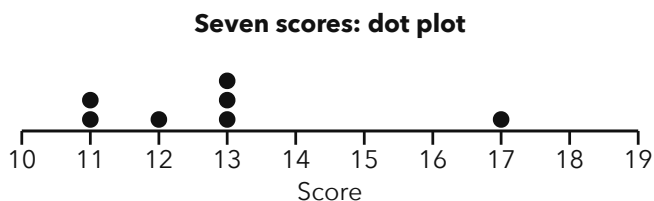
ANSWER _____

- 3** This histogram groups seven scores. State how many scores are in 10-14 and explain whether it reveals how many are exactly 13.



ANSWER _____

- 4** This dot plot shows the same scores as Practice 3. How many are exactly 13? Choose a display for that question and explain what the histogram hides.



ANSWER _____

APPLY IT Show your work

- 1** This stem-and-leaf plot shows the same scores as Practices 3 and 4. Key: 1 | 2 = 12 points. Find the median and explain why the histogram alone cannot give it.

SEVEN SCORES: STEM-AND-LEAF

Stem	Leaves
1	1 1 2 3 3 3 7

ANSWER _____

- 2** For each purpose, choose a practice display and briefly justify: show half the reading logs in 10-19 minutes; find the exact score median.

ANSWER _____

CHALLENGE One step up

Could a different set of seven whole-number scores have the same histogram as Practice 3 but a different median? Give a possible set and its median. Explain why the histogram cannot distinguish the sets.

PRACTICE 1

This circle and the histogram in Practice 2 show the same 16 new reading logs. Which display emphasizes the fraction in 10-19 minutes? Give that fraction.

The circle emphasizes one-half, or 50%, in 10-19 minutes.

PRACTICE 2

Compare this histogram with the circle in Practice 1. Which shows the peak interval more directly? Give its frequency and explain how it matches the circle.

The histogram shows a peak frequency of 8 in 10-19 minutes. This is 8/16, matching the half-circle (50%).

PRACTICE 3

This histogram groups seven scores. State how many scores are in 10-14 and explain whether it reveals how many are exactly 13.

Six scores are in 10-14. It cannot reveal the exact count at 13 because several scores share that interval.

PRACTICE 4

This dot plot shows the same scores as Practice 3. How many are exactly 13? Choose a display for that question and explain what the histogram hides.

Three scores are 13. The dot plot preserves exact values; the histogram combines 11, 12 and 13 within 10-14.

APPLY IT 1

The fourth ordered score is 13, so the median is 13 points. The histogram groups six scores in 10-14 without preserving their exact values. Order all seven scores; the fourth is 13. The histogram only places that middle value somewhere in 10-14.

APPLY IT 2

Circle for the half-of-all message; dot plot or stem-and-leaf for the median.
The half-circle shows 8 of 16. The exact-value displays preserve the fourth score, 13.

CHALLENGE

Yes: 10, 10, 10, 10, 10, 10, 19 gives six scores in 10-14 and one in 15-19. Its median is 10, unlike the original 13. The grouped counts match but exact values differ.

The worked example uses separate data. Practices 1-2 compare the same 16 reading logs as a circle and histogram. Practices 3-4 and Apply It 1 compare the same seven scores as a histogram, dot plot and stem-and-leaf plot. Data are invented. Accept alternative display choices justified for the stated purpose.