

Exercise walk-through

1.6

Describing the Distribution of a Quantitative Variable

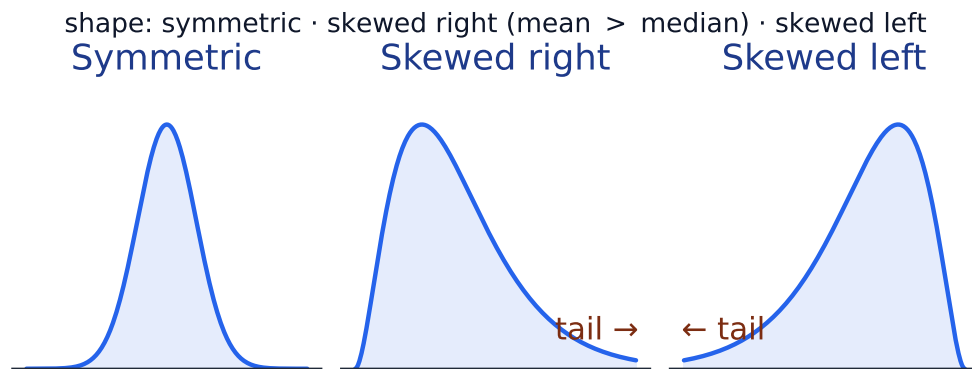
AP Statistics

Describing a distribution

Hit four features – **S**hape, **O**utliers, **C**enter, **S**pread – in context.

- **symmetric** or **skewed**
- skew is named for where the *tail* points

Always mention **outliers** : they may be errors – or the whole story.



Describing a distribution, in detail

shape	symmetric, or skewed	left or right – the tail names the direction
peaks	one main peak is unimodal; two is bimodal	, and usually means two groups are mixed
centre	the mean for a symmetric distribution, the median when it is skewed	
spread	the standard deviation with a mean; the interquartile range with a median	
outliers	more than $1.5 \times \text{IQR}$ beyond a quartile	
a cumulative relative frequency graph	reads off percentiles directly	

Answer all four, **in context**, every time. Naming the shape without the context is the commonest way to lose a description mark.

Exercises 2.1-2.3

2.1 State the three features you should describe for any distribution. [2]

2.2 Describe what “skewed right” means. [1]

2.3 Define an outlier. [1]

Exercises 2.1-2.3

2.1 State the three features you should describe for any distribution. [2]

2.1

- shape, center, spread
-

2.2 Describe what “skewed right” means. [1]

2.2

- it has a long tail extending to the right (higher values)
-

2.3 Define an outlier. [1]

2.3

- a value that is far from the rest of the data

Exercises 3.1-3.2

3.1 A distribution with a long tail to the right is

[1]

☐

- A symmetric
- B skewed left
- C skewed right
- D uniform

3.2 When describing a distribution you should mention shape, center, and

[1]

☐

- A colour
- B spread
- C the mean only
- D the category

Exercises 3.1-3.2

3.1 A distribution with a long tail to the right is

[1]

☐

- A symmetric
- B skewed left
- C skewed right
- D uniform

3.1 C

- skewed right.

3.2 When describing a distribution you should mention shape, center, and

[1]

☐

- A colour
- B spread
- C the mean only
- D the category

3.2 B

- spread.

Exercise 3.3 (a)

3.3 A histogram has its peak on the left and a long right tail.

(a) Name the shape.

[1]

Exercise 3.3 (a)

3.3 A histogram has its peak on the left and a long right tail.

(a) Name the shape.

[1]

(a)

- skewed right

Exercise 3.3 (b)

3.3 A histogram has its peak on the left and a long right tail.

(b) Name one other feature you should describe.

[1]

Exercise 3.3 (b)

3.3 A histogram has its peak on the left and a long right tail.

(b) Name one other feature you should describe.

[1]

(b)

- center or spread (or clusters/gaps/outliers)

Exercise 3.3 (c)

3.3 A histogram has its peak on the left and a long right tail.

(c) Define an outlier.

[1]

Exercise 3.3 (c)

3.3 A histogram has its peak on the left and a long right tail.

(c) Define an outlier.

[1]

(c)

- a value far from the rest of the data