RANGE

BUILDING BLOCKS

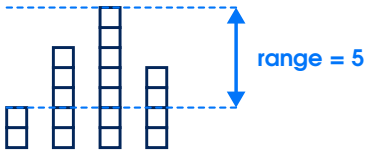
NAME _____ CLASS _____ DATE _____

KEY IDEA

The range shows how spread out the data is.

range = biggest – smallest

7 – 2 = 5, so the range is 5



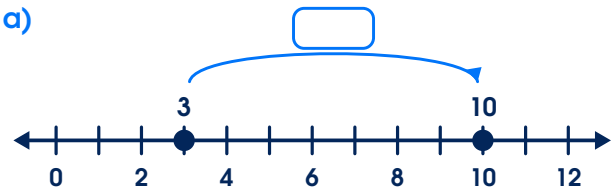
1 Find the biggest and the smallest number in each set.

a) 6 2 9 4 **Biggest:** ☐ **Smallest:** ☐

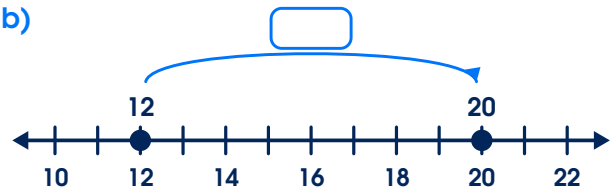
b) 15 31 8 22 **Biggest:** ☐ **Smallest:** ☐

2 Find the difference between the two numbers. Write it in the box.

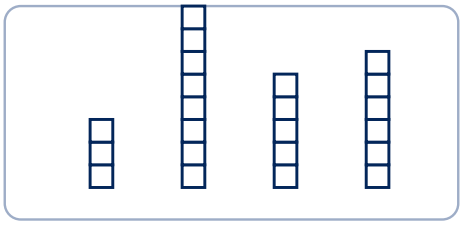
a) ☐



b) ☐



3 Here are four towers of cubes. Find the range of their heights.

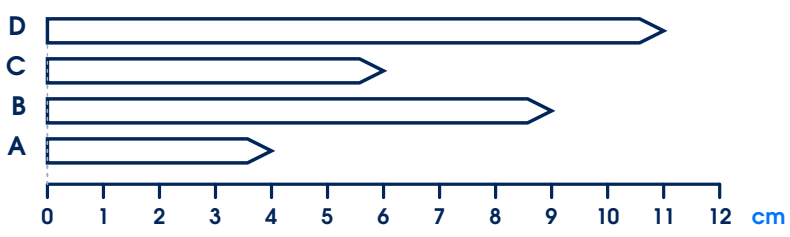


a) Tallest tower: ☐ cubes

b) Shortest tower: ☐ cubes

c) Difference (range): ☐ cubes

4 Here are the lengths of four pencils. Find the range.



a) Longest: ☐ cm

b) Shortest: ☐ cm

c) Range: ☐ cm

RANGE

SUPPORT

NAME _____ CLASS _____ DATE _____

KEY IDEA

range = largest value – smallest value

The range tells you how spread out the data is.
It is not an average. Give units, e.g. the range is 7 cm.

9 4 2 7

9 – 2 = 7

1 Find the range of each set of numbers.

a) **4, 9, 2, 7** Range = ( ) (largest) – ( ) (smallest) = ( )

b) **18, 25, 13, 30, 21** Range = ( ) – ( ) = ( )

c) **50, 35, 62, 41** Range = ( ) – ( ) = ( )

2 Find the range. Remember to write the units.

a) Temperatures: 14°C, 19°C, 11°C, 22°C, 17°C ( )

b) Masses of apples: 85 g, 120 g, 96 g, 110 g ( )

3 Raj and Zoe each try to find the range of these cards.

6 12 3 9

Raj: "Range = 9 – 6 = 3"
Zoe: "The range is 3 to 12."

a) What has each of them done wrong?

.....

b) What is the correct range? ( )

4 The table shows the goals scored by two netball teams.

	GAME 1	GAME 2	GAME 3	GAME 4
Team A	5	6	7	6
Team B	1	9	4	10

a) Range for A: ( )

b) Range for B: ( )

RANGE

CORE

NAME _____ CLASS _____ DATE _____

KEY IDEA

range = greatest value – smallest value. The range measures spread (how consistent the data are); it is not an average. A small range means the values are close together.

FLUENCY

1 Find the range of each set of data.

a) **47, 82, 63, 39, 75** Range: ☐

b) **3.6, 5.2, 4.8, 2.9** Range: ☐

c) **£1.25, £2.10, £0.95, £1.80** Range: ☐

d) **105, 98, 130, 112, 101** Range: ☐

2 Find the missing values.

a) The range of 12, 18, 15 and x is 10. x is the largest number. Find x. ☐

b) The range of 30, 41, 37 and y is 15. Find two possible values of y.

☐ **or** ☐

REASONING

3 The heights of four plants are 12 cm, 20 cm, 15 cm and 17 cm.

a) Find the range of the heights. ☐

b) A fifth plant is added and the range increases. What can you say about its height? .....

c) Instead, a fifth plant is added and the range stays the same. What can you say about its height? .....

4 Answer each question and explain your answer.

a) Kim says, "The range is a type of average." Is she right?

.....

b) Can you find the range of a class's favourite colours?

.....

RANGE

GREATER DEPTH

NAME _____ CLASS _____ DATE _____

REASONING

1 Is each statement always, sometimes or never true? Circle your answer.

If it is sometimes true, give an example of when it is true and when it is not.

a) The range is one of the values in the list. ALWAYS SOMETIMES NEVER

b) Adding a number to a list makes the range bigger. ALWAYS SOMETIMES NEVER

c) If all the numbers are positive, the range is less than the largest number. ALWAYS SOMETIMES NEVER

PROBLEM SOLVING

2 Four whole numbers have a smallest value of 7, a range of 12 and a mean of 12. Find two different possible sets.

a) ☐ ☐ ☐ ☐

b) ☐ ☐ ☐ ☐

3 Six pupils' scores in a quiz are 14, 15, 13, 16, 15 and 2.

a) Find the range of the scores. ☐ **b)** Which score is unusual? ☐

c) Find the range without the unusual score. ☐

d) Which range describes the spread of the scores better? Explain.

★ CHALLENGE FOR ALL

4 Five whole-number cards fit all of these facts. Find the five cards.

range = 9 | median = 6 | only mode = 4 | mean = 7

☐ ☐ ☐ ☐ ☐

RANGE – ANSWERS

ANSWERS

BUILDING BLOCKS

1. a) biggest 9, smallest 2 · b) biggest 31, smallest 8
2. a) 7 · b) 8
3. a) 8 cubes · b) 3 cubes · c) 5 cubes
4. 11 – 4 = 7 cm

SUPPORT

1. a) 9 – 2 = 7 · b) 30 – 13 = 17 · c) 62 – 35 = 27
2. a) 11°C · b) 35 g
3. a) Raj used the first and last cards instead of the largest and smallest. Zoe gave the smallest and largest values but did not find the difference. · b) 12 – 3 = 9
4. a) 2 · b) 9

CORE

1. a) 43 · b) 2.3 · c) £1.15 · d) 32
2. a) 22 · b) 26 or 45
3. a) 8 cm · b) It is shorter than 12 cm or taller than 20 cm. · c) It is between 12 cm and 20 cm (it could be exactly 12 cm or 20 cm).
4. a) No: the range measures how spread out the data are, not a typical value. · b) No: colours are not numbers, so there is no largest or smallest value to subtract.

GREATER DEPTH

1. a) sometimes (2, 4, 6 has range 4, which is in the list; 1, 5 has range 4, which is not) · b) sometimes (adding 3 to 1, 5 does not) · c) always
2. The largest is 19 and the total is 48, so the middle two total 22, e.g. 7, 10, 12, 19 and 7, 11, 11, 19 (also 7, 7, 15, 19; 7, 8, 14, 19; 7, 9, 13, 19)
3. a) 14 · b) 2 · c) 3 · d) the range without 2: one unusual score (an outlier) makes the range look much bigger than the spread of the other scores
4. 4, 4, 6, 8, 13 (4 must appear twice below the median, so the largest is 4 + 9 = 13 and the fourth card is 35 – 27 = 8)