AVERAGES AND RANGE IN CONTEXT

BUILDING BLOCKS

NAME _____ CLASS _____ DATE _____

KEY IDEA

MODE	MEDIAN	MEAN	RANGE
most common	middle, in order	add up, ÷ how many	biggest – smallest

1 Find the mode, median, mean and range of these cards.

3	6	6	9	11

These cards are already in order.

Mode = ☐ most common

Median = ☐ middle card

Mean = ☐ add up, ÷ 5

Range = ☐ biggest – smallest

2 Count the marbles in each bag. Then find the mode, median, mean and range.



Bag A | Bag B | Bag C | Bag D | Bag E

In order: ☐ ☐ ☐ ☐ ☐

Mode = ☐

Median = ☐

Mean = ☐

Range = ☐

3 Which would you use? Circle one word for each.

a) the most popular ice-cream flavour — MODE / MEDIAN / MEAN / RANGE

b) how spread out some heights are — MODE / MEDIAN / MEAN / RANGE

c) sharing sweets out equally — MODE / MEDIAN / MEAN / RANGE

4 Three cards have a mean of 5. Find the total, then write the missing card in the box.

4	8	

mean = 5

Total = 3 × 5 = ☐

AVERAGES AND RANGE IN CONTEXT

SUPPORT

NAME _____ CLASS _____ DATE _____

KEY IDEA

Mode the most common value

Mean total ÷ number of values

Median the middle value of the ordered data

Range largest – smallest (spread, not an average)

1 Write the data in order. Then find the mode, median, mean and range.

8, 3, 7, 8, 4 In order: ☐ ☐ ☐ ☐ ☐

Mode = ☐ **Median =** ☐

Mean = ☐ **Range =** ☐

2 Sam works out the averages and range of this data. Tick the right answers and cross the wrong ones.

6, 0, 9, 3, 6, 4

Tick or cross

a) Mean = 28 ÷ 5 = 5.6 ☐

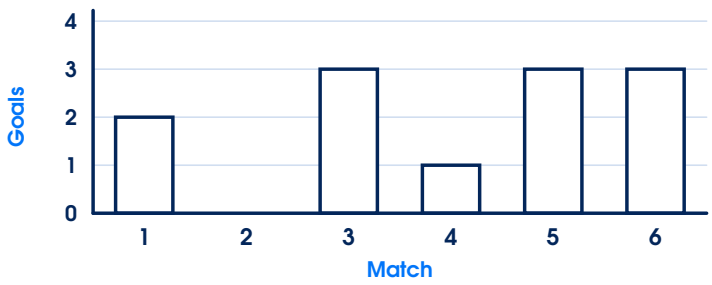
b) Median: 9 and 3 are in the middle, so the median is 6 ☐

c) Mode = 6 ☐

d) Range = 6 – 4 = 2 (first and last) ☐

e) Correct each wrong answer. .....

3 The bar chart shows the goals a team scored in 6 matches.



Mode = ☐

Median = ☐

Mean = ☐

Range = ☐

4 Four cards have a mean of 6. Write the missing card in the box.

4	7	9	☐

mean = 6 Total of the four cards: ☐

AVERAGES AND RANGE IN CONTEXT

CORE

NAME _____ CLASS _____ DATE _____

KEY IDEA

Mode: most common. Median: middle of the ordered data. Mean: total ÷ number of values. Range: largest − smallest. The range measures spread; the other three are averages.

FLUENCY

1 Seven pupils' times, in minutes, to walk to school are shown. Find the mode, median, mean and range.

12, 8, 15, 8, 20, 11, 9

Mode = ☐ **Median =** ☐

Mean = ☐ **Range =** ☐

Give the mean to 1 decimal place.

2 Five houses on a street sold for these prices.

£180 000, £195 000, £210 000, £200 000, £950 000

a) Find the mean price. ☐ **b)** Find the median price. ☐

c) Which average represents the prices better? Explain.

.....

REASONING

3 Three whole-number cards fit these facts. Find the three cards.

mean = 7 **median = 6** **range = 7** ☐ ☐ ☐

4 Five numbers have a mean of 10 and a median of 10. Must the mode be 10? Convince me.

.....

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AVERAGES AND RANGE IN CONTEXT

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 mean, median and mode of a set of data are all different. ALWAYS SOMETIMES NEVER

b) Adding a value equal to the mean to the list of numbers leaves the mean the same. ALWAYS SOMETIMES NEVER

c) The median is greater than the mean. ALWAYS SOMETIMES NEVER

PROBLEM SOLVING

2 Two classes sit the same test, marked out of 20.

	MEAN	RANGE
Class A	**14**	**3**
Class B	**16**	**12**

a) Higher average? ☐

b) More consistent? ☐

c) Rosie says Class B did better. Give a reason why someone could disagree.

3 The mean age of five pupils is 12. Their teacher joins them and the mean age becomes 16.

How old is the teacher? ☐

★ CHALLENGE FOR ALL

4 Four whole-number cards fit these facts. Find the cards for each extra rule.

one card is 9 **mean = 7.5** **range = 8**

a) The median is less than the mean. ☐ ☐ ☐ ☐

b) The median is greater than the mean. ☐ ☐ ☐ ☐

AVERAGES AND RANGE IN CONTEXT – ANSWERS

ANSWERS

BUILDING BLOCKS

1. mode 6 · median 6 · mean 35 ÷ 5 = 7 · range 11 – 3 = 8
2. bags 4, 2, 6, 4, 9; in order 2, 4, 4, 6, 9 · mode 4 · median 4 · mean 25 ÷ 5 = 5 · range 7
3. a) mode · b) range · c) mean
4. total 15; missing card 3

SUPPORT

1. 3, 4, 7, 8, 8 · mode 8 · median 7 · mean 30 ÷ 5 = 6 · range 5
2. a) □ · b) □ · c) ✓ · d) □ · e) mean = 28 ÷ 6 = 4.67 (to 2 d.p.); in order 0, 3, 4, 6, 6, 9 so median = 5; range = 9 – 0 = 9
3. mode 3 · median 2.5 · mean 12 ÷ 6 = 2 · range 3
4. total 4 × 6 = 24, so the missing card is 24 – 20 = 4

CORE

1. mode 8 min · median 11 min · mean 83 ÷ 7 = 11.9 min · range 12 min
2. a) £347 000 · b) £200 000 · c) the median: the £950 000 house pulls the mean above every other price
3. 4, 6, 11
4. No. The numbers must total 50 with 10 in the middle, e.g. 8, 9, 10, 11, 12 has no mode and 5, 5, 10, 15, 15 has modes 5 and 15.

GREATER DEPTH

1. a) sometimes (1, 1, 3, 7: mode 1, median 2, mean 3; 2, 2, 2: all 2) · b) always · c) sometimes (1, 5, 6: median 5, mean 4; 1, 2, 9: median 2, mean 4)
2. a) Class B · b) Class A · c) e.g. Class A's scores are much more consistent; Class B's range of 12 means some of its pupils scored low.
3. 6 × 16 – 5 × 12 = 96 – 60 = 36
4. total 30, largest = smallest + 8 · a) 4, 5, 9, 12 · b) 3, 7, 9, 11 or 2, 9, 9, 10