S32-10min Time Series: 10-minute Pack

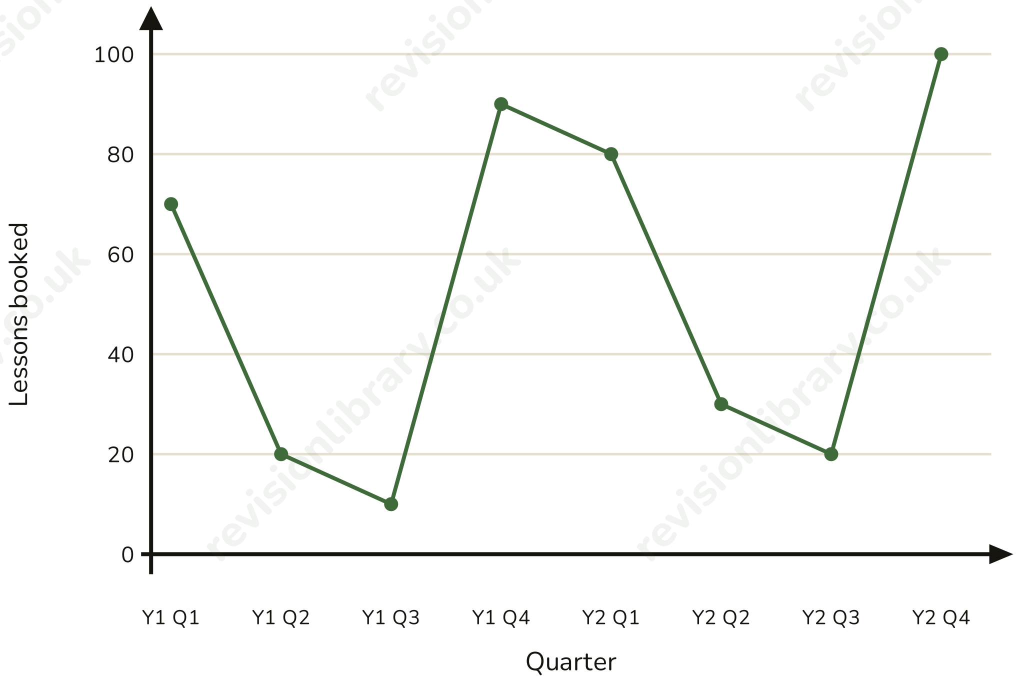
EDEXCEL 1ST0 · Calculator allowed · about 10 minutes

Total Marks

Name: ______________________________ Date: ____ / ____ / ______

Answer ALL questions. Show all your working.

1 Northfell Dry Ski Slope records the number of ski and snowboard lessons it sells each quarter. The graph shows lesson bookings for Year 1 and Year 2.



(a) Write down the number of lessons booked in Year 2 Quarter 3. **(1)**

....

(b) Write down the quarter in which the fewest lessons were booked in both Year 1 and Year 2. **(1)**

....

(c) Describe, in one sentence, the pattern shown by the graph over the two years. **(1)**

(d) State whether the name for this repeating winter-high, summer-low pattern is the trend or the seasonal variation. **(1)**

(Total for Question 1 is 4 marks)

2 Riverside Bike Hire's quarterly data is shown again.

Quarter	Y1 Q1	Y1 Q2	Y1 Q3	Y1 Q4	Y2 Q1	Y2 Q2
Bikes hired	30	70	90	50	40	80

(a) Which of these calculations gives the second 4-point moving average for this data? **(1)**

- ☐ A) (30 + 70 + 90 + 50) / 4
- ☐ B) (70 + 90 + 50 + 40) / 4
- ☐ C) (90 + 50 + 40 + 80) / 4
- ☐ D) (30 + 70 + 90 + 50 + 40) / 5

(b) Hence write down the value of this moving average. **(1)**

....

(Total for Question 2 is 2 marks)

3 Mill Lane Market Stall opens on Wednesday, Friday and Saturday each week. The table shows the stall's takings, in pounds, on each trading day.

Day	Week 1 Wed	Week 1 Fri	Week 1 Sat	Week 2 Wed
Takings (£)	120	150	210	135

(a) Since the stall trades 3 times a week, calculate the first two 3-point moving averages for this data. **(3)**

....

(b) What do these two moving averages suggest about the trend in the stall's takings? **(1)**

(Total for Question 3 is 4 marks)

Mark scheme · S32-10min Time Series: 10-minute Pack

Question 1

- (a) **B1** 20 cao
- **(a) Answer: 20**
- (b) **B1** Quarter 3 (Q3) cao
- **(b) Answer: Quarter 3**
- (c) **B1** identifies both the repeating seasonal pattern (high in Q4 and Q1, low in Q2 and Q3) and that Year 2 is higher than Year 1 overall, oe
- **(c) Answer: Bookings rise and fall in the same seasonal pattern each year (highest in Q4 and Q1, lowest in Q2 and Q3), and Year 2 bookings are higher than Year 1 in every matching quarter.**
- (d) **B1** Seasonal variation cao
- **(d) Answer: Seasonal variation**

Question 2

- (a) **B1** B cao
- **(a) Answer: B) (70 + 90 + 50 + 40) / 4**
- (b) **B1** 62.5 cao
- **(b) Answer: 62.5**

Question 3

- (a) **M1** correct method shown, e.g. (120+150+210)/3
- (a) **A1** 160 cao
- (a) **A1** 165 cao
- **(a) Answer: 160, 165**
- (b) **B1** the trend is increasing, since the moving average rises from 160 to 165, oe
- **(b) Answer: The trend is increasing.**