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PURE MATH

ALGEBRA AND FUNCTION

Level & Board	EDEXCEL (A-LEVEL)
TOPIC:	ARITHMETIC SEQUENCE
PAPER TYPE:	QUESTION PAPER - 1
TOTAL QUESTIONS	8
TOTAL MARKS	56

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Questions

Q1.

A car has six forward gears.

The fastest speed of the car

- in 1st gear is 28 km h^{-1}
- in 6th gear is 115 km h^{-1}

Given that the fastest speed of the car in successive gears is modeled by an **arithmetic sequence**,

- (a) Find the fastest speed of the car in 3rd gear.

(3)

Given that the fastest speed of the car in successive gears is modeled by a **geometric sequence**,

- (b) Find the fastest speed of the car in 5th gear.

(3)

(Total for question = 6 marks)

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Q2.

A bike has five forward gears.
The fastest speed of the bike

- in 1st gear is 20 km h^{-1}
- in 5th gear is 120 km h^{-1}

Given that the fastest speed of the bike in successive gears is modeled by an **arithmetic sequence**,

- (a) If the speeds in successive gears are modeled by an arithmetic sequence, find the speed in the 3rd gear. **(3)**
- (b) If the speeds in successive gears are modeled by a geometric sequence, find the speed in the 4th gear. **(4)**

(Total for question = 7 marks)

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Q3.

A car has seven gears.

The fastest speed of the car

- in 1st gear is 30 km h^{-1}
- in 7th gear is 150 km h^{-1}

Given that the fastest speed of the car in successive gears is modeled by an **arithmetic sequence**,

- (a) If the speeds in successive gears are modeled by an arithmetic sequence, find the speed in the 4th gear. **(4)**
- (b) If the speeds in successive gears are modeled by a geometric sequence, find the speed in the 5th gear. **(3)**

(Total for question = 7 marks)

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Q4.

A motorcycle has six gears.

The fastest speed of the motorcycle

- in 1st gear is 25 km h^{-1}
- in 6th gear is 140 km h^{-1}

Given that the fastest speed of the motorcycle in successive gears is modeled by an **arithmetic sequence**,

- (a) If the speeds in successive gears are modeled by an arithmetic sequence, find the speed in the 3rd gear. (4)
- (b) If the speeds in successive gears are modeled by a geometric sequence, find the speed in the 4th gear. (4)

(Total for question = 8 marks)

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Q5.

A car has eight gears.

The fastest speed of the car

- in 1st gear is 40 km h^{-1}
- in 8th gear is 200 km h^{-1}

Given that the fastest speed of the car in successive gears is modeled by an **arithmetic sequence**,

- (a) If the speeds in successive gears are modeled by an arithmetic sequence, find the speed in the 5th gear. **(3)**
- (b) If the speeds in successive gears are modeled by a geometric sequence, find the speed in the 6th gear. **(3)**

(Total for question = 6 marks)

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Q6.

A truck has eight gears.

The fastest speed of the truck

- in 1st gear is 35 km h^{-1}
- in 9th gear is 180 km h^{-1}

Given that the fastest speed of the truck in successive gears is modeled by an **arithmetic sequence**,

- (a) If the speeds in successive gears are modeled by an arithmetic sequence, find the speed in the 6th gear. (3)
- (b) If the speeds in successive gears are modeled by a geometric sequence, find the speed in the 7th gear. (4)

(Total for question = 7 marks)

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Q7.

A bicycle has six gears.

The fastest speed of the bicycle

- in 1st gear is 15 km h^{-1}
- in 6th gear is 45 km h^{-1}

Given that the fastest speed of the bicycle in successive gears is modeled by an **arithmetic sequence**,

- (a) If the speeds in successive gears are modeled by an arithmetic sequence, find the speed in the 4th gear. **(5)**
- (b) If the speeds in successive gears are modeled by a geometric sequence, find the speed in the 5th gear. **(4)**

(Total for question = 9 marks)

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Q8.

A car has five gears.

The fastest speed of the bicycle

- in 1st gear is 30 km h^{-1}
- in 5th gear is 150 km h^{-1}

Given that the fastest speed of the car in successive gears is modeled by an **arithmetic sequence**,

- (a) If the speeds in successive gears are modeled by an arithmetic sequence, find the speed in the 3rd gear. **(3)**
- (b) If the speeds in successive gears are modeled by a geometric sequence, find the speed in the 4th gear. **(3)**

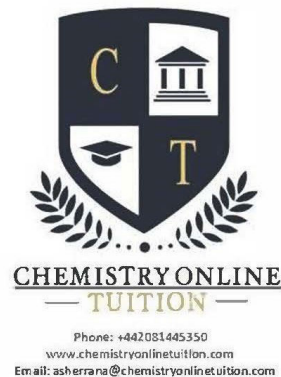
(Total for question = 6 marks)

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