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PURE MATH

ALGEBRA AND FUNCTION

Level & Board	EDEXCEL (A-LEVEL)
TOPIC:	LINEAR MODAL
PAPER TYPE:	QUESTION PAPER - 1
TOTAL QUESTIONS	8
TOTAL MARKS	44

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Questions

Q1.

A tree was planted in the ground.

Its height, H metres, was measured t years after planting.

The tree's height was exactly 2.35 metres after 3 years of planting, and 3.28 metres after 6 years of planting.

Using a linear model,

(a) find an equation that links H with t .

The height of the tree was approximately 140 cm when it was planted.

(3)

(b) Explain whether or not this fact supports the use of the linear model in part (a).

(2)

(Total for question = 5 marks)

Q2.

Suppose a tree was planted, and its height H (in meters) was measured t (in years) after planting. The height of the tree was 1.5 meters after 2 years and 4 meters after 5 years.

(5)

(Total for question = 5 marks)

Q3.

Suppose we want to create a linear model for the growth of a plant's height in centimeters over time in months after planting. Let's call the plant's height H and the time elapsed t . After 4 months, the plant's height was centimeters, and after 10 months, it was 65 centimeters.

(5)

(Total for question = 5 marks)

Q4.

Let's create a linear model for a car's value V (in thousands of dollars) as it depreciates over time. We know that the car's value was \$18,000 after 2 years and \$12,000 after 5 years.

(5)

(Total for question = 4 marks)

Q5.

Suppose a rocket is launched into the sky and its altitude is measured over time. The rocket was at 5 kilometers at 10 seconds and 20 kilometers at 30 seconds.

(4)

(Total for question = 4 marks)

Q6.

Consider two lines with the equations:

Line 3: $3x - 2y + 5 = 0$

Line 4: $y = nx - 2$

- (a) find the value of 'n' such that Line 3 and Line 4 are perpendicular.

(3)

- (b) find the x-coordinate of the point 'Q' where the two lines intersect.

(3)

(Total for question = 6 marks)

Q7.

Consider two lines with the equations:

Line 5: $4x+3y-6=0$

Line 6: $y=px+2$

- (a) find the value of 'n' such that Line 5 and Line 6 are perpendicular. (3)
- (b) find the x-coordinate of the point 'R' where the two lines intersect. (4)

(Total for question = 7 marks)

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Q8.

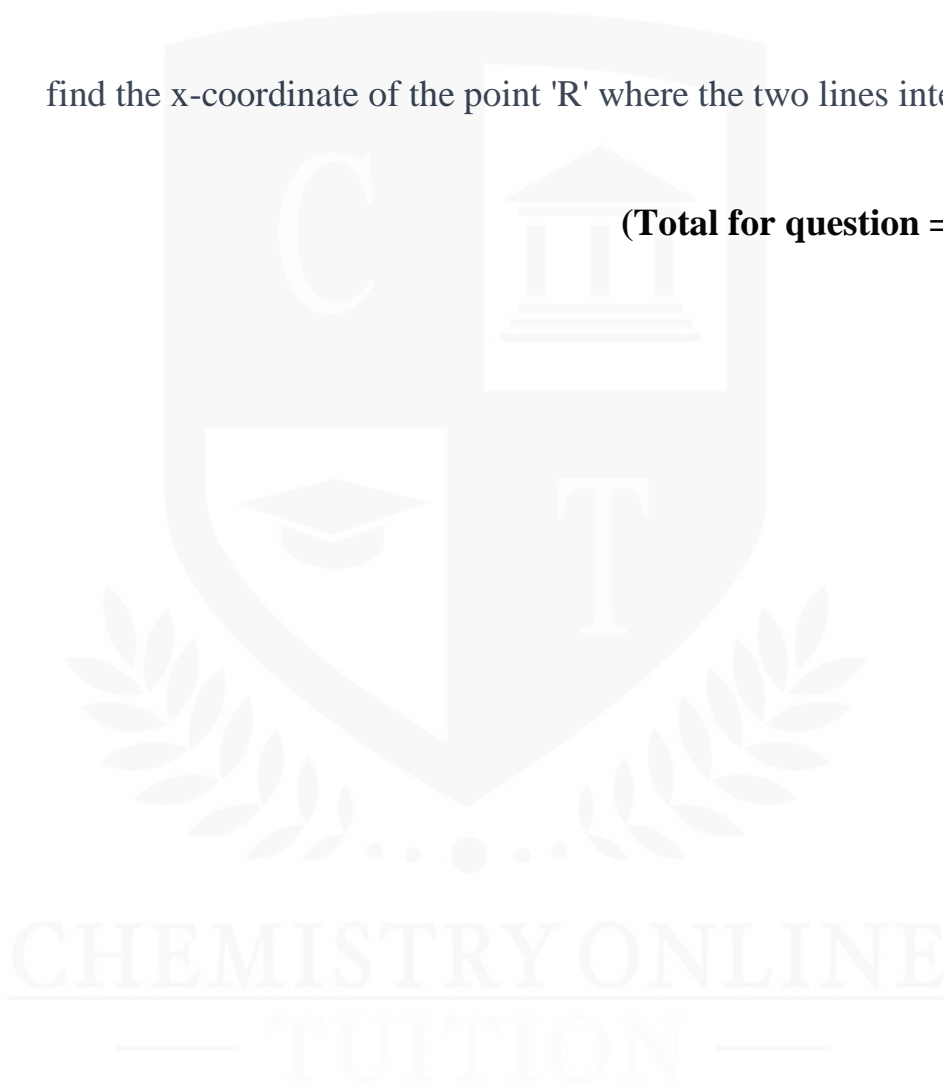
Consider two lines with the equations:

Line 5: $4x+3y-6=0$

Line 6: $y=px+2$

- (a) find the value of 'n' such that Line 5 and Line 6 are perpendicular. **(4)**
- (b) find the x-coordinate of the point 'R' where the two lines intersect. **(4)**

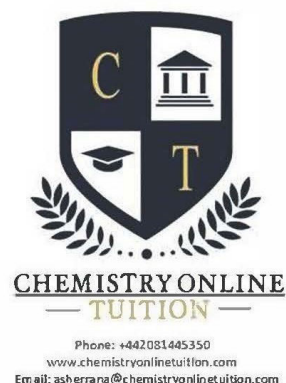
(Total for question = 8 marks)



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DR. ASHAR RANA



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