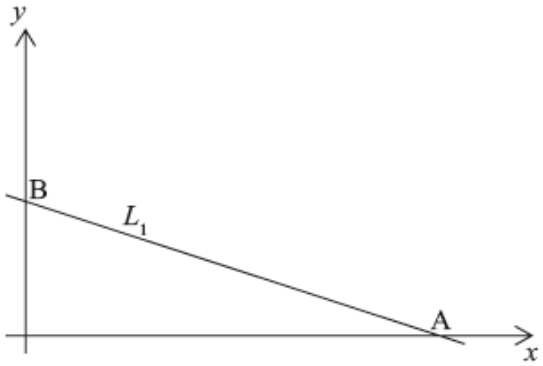
BECA / Dr. Huson / 12.1 IB Math SL Name:
5 September 2018

Homework: Review problems of linear & quadratic functions and models

1a. The diagram shows the straight line L_1, which intersects the x-axis at $\mathrm{A}(6,\ 0)$ and the y-axis at $\mathrm{B}(0,\ 2)$.



Write down the coordinates of M, the midpoint of line segment AB. *[2 marks]*

1b. Calculate the gradient of L_1. *[2 marks]*

1c. The line L_2 is parallel to L_1 and passes through the point $(3,\ 2)$.

Find the equation of L_2. Give your answer in the form $y = mx + c$. *[2 marks]*

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2a. The equation of the line L_1 is $2x + y = 10$.
Write down
(i) the gradient of L_1;
(ii) the y-intercept of L_1. *[2 marks]*

2b. The line L_2 is parallel to L_1 and passes through the point $\mathrm{P}(0,\ 3)$.
Write down the equation of L_2. *[2 marks]*

2c. Find the x-coordinate of the point where L_2 crosses the x-axis. *[2 marks]*

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3a. The number of apartments in a housing development has been increasing by a constant amount every year. At the end of the first year the number of apartments was 150, and at the end of the sixth year the number of apartments was 600.

The number of apartments, y, can be determined by the equation $y = mt + n$, where t is the time, in years.

Find the value of m. *[2 marks]*

3b. State what m represents **in this context**. *[1 mark]*

3c. Find the value of n. *[2 marks]*

3d. State what n represents **in this context**. *[1 mark]*

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