Math AA HL Break Homework

[9 marks]

Let $f(x) = \frac{2x^2 - 5x - 12}{x+2}$, $x \in \mathbb{R}$, $x \neq -2$.

1a. Find all the intercepts of the graph of $f(x)$ with both the x and y axes.   *[4 marks]*

1b. Write down the equation of the vertical asymptote.   *[1 mark]*

1c. As $x \to \pm\infty$ the graph of $f(x)$ approaches an oblique straight line asymptote.   *[4 marks]*

Divide $2x^2 - 5x - 12$ by $x + 2$ to find the equation of this asymptote.

2.   Use induction to prove that $6^n - 1$ is divisible by 5 for all $n \in \mathbb{N}$.

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