

MATH*1200 – LAB #1 SOLUTION

Solution to: www.nathanieljohnston.com/math1200/lab1.pdf

We are told that Tim can jump 2 metres horizontally. Thus, if he jumps from position x metres, he will land at $x + 2$ metres. However, when Tim is at $x + 2$ metres, the left edge of the cloud platform is at $3 + \frac{x+2}{3}$ metres. Thus, for Tim to land on the cloud platform, we need $x + 2 \geq 3 + \frac{x+2}{3}$:

$$\begin{aligned}x + 2 &\geq 3 + \frac{x + 2}{3} \\ \iff x &\geq 1 + \frac{x}{3} + \frac{2}{3} \\ \iff \frac{2x}{3} &\geq \frac{5}{3} \\ \iff x &\geq \frac{5}{2}.\end{aligned}$$

Combining this with the fact that Tim's ledge ends at $x = 3$, we see that the range of positions from which Tim can jump to land on the cloud platform is $x \in [\frac{5}{2}, 3]$.

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