Quiz 6

CMPSC 360

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Question 1:

$a_n = (n+1)! - 1$ for $n \geq 1$

Question 3:

$$
\begin{aligned}
f(x) &= \frac{4x+3}{2x+5} \\
y &= \frac{4x+3}{2x+5} \text{ (by definition of f)} \\
2xy + 5y &= 4x + 3 \\
5y - 3 &= 4x - 2xy \\
5y - 3 &= x(4 - 2y) \\
\frac{5y-3}{4-2y} &= x \\
f'(x) &= \frac{5x-3}{4-2x}
\end{aligned}
$$

Question 4:

There are 17 total children and there are 7 days in a week. Considering there are more children than there are days in a week, and since $\lfloor 17/7 \rfloor = 2$, we can say that at least three of them were born on the same day of the week.