Question 4

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(a) Prove by induction that $8^n - 1$ is divisible by 7 for all $n \in \mathbb{N}$.

(b) Given $\log_a 2 = p$ and $\log_a 3 = q$, where a > 0, write each of the following in terms of p and q:

(i))	lo	ga	<u>8</u> 3														

(ii)
$$\log_a \frac{9a^2}{16}$$
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