

$$(\forall n \in N)(\exists a \in N)[4n + 1 = 2a + 1 \vee 4n + 3 = 2a + 1]$$

$$4n + 1 = 2a + 1$$

$$4n = 2a$$

$$n = \frac{a}{2}$$

$$4n + 3 = 2a + 1$$

$$4n = 2a - 2$$

$$n = \frac{2(a-1)}{4} = \frac{a-1}{2}$$

If a is even $a = 2k$ where $k \in N$:

$$n = \frac{2k}{2} = k$$

If a is odd $a = 2l + 1$ where $l \in N$:

$$n = \frac{2l + 1 - 1}{2}$$

$$n = \frac{2l}{2}$$

$$n = l$$

Therefore for both odd and even a it could be one of given forms.
QED.