A = {x / x is an odd number between 5 and 21} is same as------------

a. $A_a = \{5,7,9,11,13,15,17,19\}$

b. $A_b = \{5,7,9,11,13,15,17,19,21\}$

c. $A_c = \{x : x \text{ is an odd number between 5 and } 21\}$

d. $A_d = \{7,9,11,13,15,17,19,21\}$

Solution

By the definition of origin set we have that if $x \in A$ then x is odd and $5 < x < 21$.

Let's check each of the given variants:

a. $A_a = \{5,7,9,11,13,15,17,19\}$, since $5 \in A_a$ and $5 \not> 5$ then $A_a \neq A$

b. $A_b = \{5,7,9,11,13,15,17,19,21\}$, since $5 \in A_b$ and $5 \not> 5$ then $A_b \neq A$

d. $A_d = \{7,9,11,13,15,17,19,21\}$, since $21 \in A_d$ and $21 \not> 21$ then $A_d \neq A$

c. $A_c = \{x : x \text{ is an odd number between 5 and } 21\}$, so if $x \in A_c$ then x is odd and $5 < x < 21$.

Thus, if $x \in A_c$ then $x \in A$, and vice versa: if $x \in A$, then $x \in A_c$. This means that $A_c = A$

Answer: c.