8.

$P'10 \longrightarrow P10$

Let a be any number and $b = 0$. Then by P'10, we obtain P10:

> Let P denote the positive numbers. For any number a, one and only one of the following holds:
>
> (i) $a = 0$
>
> (ii) $0 < a \Longrightarrow a$ is in the collection P
>
> (iii) $a < 0 \Longrightarrow -a > 0 \Longrightarrow -a$ is in the collection P

$P'11 \wedge P'12 \longrightarrow P11$

Let a and b be any numbers such that $0 < a$ and $0 < b$. By P'12, $(0 < a) \Longrightarrow (0 + b < a + b)$. By P'11, $(0 < b$ and $b < a + b) \Longrightarrow (0 < a + b)$, so we obtain P11:

> Let P denote the positive numbers. If a and b are in the collection P, then $a + b$ is in P.

$P'13 \longrightarrow P12$

Let a and b be any numbers such that $0 < a$ and $0 < b$. By P'13, $0(b) < a(b) \Longrightarrow 0 < ab$. Thus we obtain P12:

> Let P denote the positive numbers. If a and b are in the collection P, then ab is in P.