1) $Z_{13} = \{0,1,2,3,4,5,6,7,8,9,10,11,12\}$

$Z^*_{13} = \{1,2,3,4,5,6,7,8,9,10,11,12\}$

2) $Z_{18} = \{0,1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17\}$

$Z^*_{18} = \{1,5,7,11,13,17\}$

3) $5^1 = 5$

$5^2 = 25 \equiv \mod 13 = 12$

$5^3 = 125 \mod 13 = 8$

$5^4 = 625 \mod 13 = 1$

$\text{order}(5) = Z^*_{13} = \boxed{4}$

4) $5 \in Z_{13}$

$5 * x = 1 \mod 13$

$x = 1$	$x = 2$	$x = 3$	$x = 4$
$5 * x$	$5 * 2$	$5 * 3$	$5 * 4$
5×1	$10 \not\equiv 1$	$15 > 13$	$20 > 13$
$5 \not\equiv 1$		$15 \mod 13$	$20 \mod 13$
		$2 \not\equiv 1$	$7 \not\equiv 1$

$x = 5$

5×5	$x = 6$	$x = 7$	$x = 8$
$25 > 13$	$5 \cdot 6$	$5 \cdot 7$	$5 \cdot 8$
$25 \mod 13$	$30 \mod 13$	$35 \mod 13$	$40 \mod 13$
$12 \not\equiv 1$	$4 \neq 1$	$9 \not\equiv 1$	$1 = 1$

$\boxed{x = 8}$