

Perform the following arithmetic using 2's complement.

a. $-5_{10} - 4_{10}$

b. $+5_{10} + 4_{10}$

c. $-5_{10} + 4_{10}$

Solution:

$+5_{10} = (0\ 0\ 1\ 0\ 1)_2 \Rightarrow -5_{10} = (1\ 1\ 0\ 1\ 1)_2$ (2's complement of $+5_{10}$)

$+4_{10} = (0\ 0\ 1\ 0\ 0)_2 \Rightarrow -4_{10} = (1\ 1\ 1\ 0\ 0)_2$ (2's complement of $+4_{10}$)

a.

-5_{10}	$(1\ 1\ 0\ 1\ 1)_2$
-4_{10}	$(1\ 1\ 1\ 0\ 0)_2$
$= -9_{10}$	$\underline{1}(1\ 0\ 1\ 1\ 1)_2$

b.

$+5_{10}$	$(0\ 0\ 1\ 0\ 1)_2$
$+4_{10}$	$(0\ 0\ 1\ 0\ 0)_2$
$= +9_{10}$	$(0\ 1\ 0\ 0\ 1)_2$

c.

-5_{10}	$(1\ 1\ 0\ 1\ 1)_2$
$+4_{10}$	$(0\ 0\ 1\ 0\ 0)_2$
$= -1_{10}$	$(1\ 1\ 1\ 1\ 1)_2$