

Computer Systems

Week 3 Assessment Tasks
SIT111 - Task 3.2C

a.

111010

	OUT	x	y
	$f(x,y) = -1$	0001 (1)	0011 (3)
1	Set x to zero	0000	
1	Negate x	1111 (-1)	
1	Set y to zero		0000
0	Don't negate y		
1	Add x and y	1111 (-1)	
0	Don't negate result		

b.

001101

	OUT	x	y
	$f(x,y) = !x$	1010 (-6)	0011 (3)
0	Don't set x to zero	1010 (-6)	
0	Don't negate x	1010 (-6)	
1	Set y to zero		0000
1	Negate y		1111 (-1)
0	x & y	1010 (-6)	
1	Negate the result	0101 (5)	

c.

011111

	OUT	x	y
	$f(x,y) = x+1$	1011 (-5)	0001 (1)
0	Don't set x to zero	1011 (-5)	
1	Negate x	0100 (4)	
1	Set y to zero		0000
1	Negate y		1111 (-1)
1	Add x and y	0011 (3)	
1	Negate the result	1100 (-4)	

d.

000010

	OUT	x	y
	$f(x,y) = x+y$	1011 (-5)	0101 (5)
0	Don't set x to zero	1011 (-5)	
0	Don't negate x	1011 (-5)	
0	Don't set y to zero		0101 (5)
0	Don't negate y		0101 (5)
1	Add x and y		
0	Don't negate result	0000	

e.

000000

	OUT	x	y
	$f(x,y) = x \& y$	1011 (-5)	1001 (-7)
0	Don't set x to zero	1011 (-5)	
0	Don't negate x	1011 (-5)	
0	Don't set y to zero		1001 (-7)
0	Don't negate y		1001 (-7)
0	x & y	1001 (-7)	
0	Don't negate result		