

Team #: _____

Name: _____

Absent:

1) Draw the logic circuit using ANDs, ORs, and NOT gates for $F = \overline{A}\overline{B}C + A\overline{B}\overline{C} + \overline{A}BC + A\overline{B}C$.
What is the complexity (sum of # inputs and # gates)?

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Absent:

Identity Name	AND Form	OR Form
Identity Law	$1x = x$	$0+x = x$
Null (or Dominance) Law	$0x = 0$	$1+x = 1$
Idempotent Law	$xx = x$	$x+x = x$
Inverse Law	$x\bar{x} = 0$	$x+\bar{x} = 1$
Commutative Law	$xy = yx$	$x+y = y+x$
Associative Law	$(xy)z = x(yz)$	$(x+y)+z = x+(y+z)$
Distributive Law	$x+yz = (x+y)(x+z)$	$x(y+z) = xy + xz$
Absorption Law	$x(x+y) = x$	$x+xy = x$
DeMorgan's Law	$\overline{(xy)} = \bar{x} + \bar{y}$	$\overline{(x+y)} = \bar{x}\bar{y}$
Double Complement Law	$\overline{\bar{x}} = x$	

2) Using Boolean Algebra simplify $F = \overline{A}BC + A\overline{B}C + \overline{A}BC + A\overline{B}C$.

3) Draw the simplified logic circuit using ANDs, ORs, and NOT.
What is the complexity (sum of # inputs and # gates)?