Ripple Carry Adder 32 Bit

A	Negative number + negative number with overflow flag				Twos Complement
	V <= C31 xor C30 **1**				
	C31 **1**	**01111111111111111111111111110**			
A		10111111111111111111111111011111			-1073741857
B		10011111111111111111111111101001			-1610612759
Sum	1	01011111111111111111111111001000			1610612680

B	Negative number + negative number without overflow flag		Twos Complement
	V <= C31 xor C30 **0**		
	C31 **1**	11111111111111111111111111111110	
A		11111111111111111111111111011111	-33
B		11111111111111111111111111101001	-23
Sum	1	11111111111111111111111111001000	-56

C	Positive number + positive number with overflow flag (V-flag)				
	V <= C31 xor C30 **1**			Unsigned	Twos Complement
	C31 **0**	**01000000000000000000000000000110**			
A		00100000000000000000000000000001	536870913	536870913
B		00100000000000000000000000001011	536870923	536870923
Sum		01000000000000000000000000001100		1073741836

D	Positive number + positive number without overflow flag (V-flag)				
	V <= C31 xor C30 0			Unsigned	Twos Complement
	C31 **0**	**00000000000000000000000011111010**			
A		00000000000000000000000001100101	101	101
B		00000000000000000000000000011101	29	29
Sum		00000000000000000000000010000010	130	130

E	Positive number + negative number without overflow flag (V-flag)				
	V <= C31 xor C30 0			Unsigned	Twos Complement
	C31 **1**	**11111111111111111111111111000010**			
A		00000000000000000000000001100101	101	101
B		11111111111111111111111111101001		-23
Sum	1	00000000000000000000000001001110	78	78

F	Nagative number + positive number without overflow flag (V-flag) Worst case propagation delay, C0 is set				
	V <= C31 xor C30 0			Unsigned	Twos Complement
	C31 **1**	**11111111111111111111111111111111**			
A		11111111111111111111111111111110			-2
B		00000000000000000000000000000001			1
Sum	1	00000000000000000000000000000000		N/A	0

Demonstrate worst case propagation delay. Also how long is the propagation delay?

163 ns when we run the above code

If you add a 2's complement number to your StudentID, what number would set the C flag and V flag? There is no number which can do this

	V <= C31 xor C30 1			Unsigned	Twos Complement
	C31 **1**	**10111111111111111111111111111110**			
A		00000001010001100000011010010001			-2
B		11011100111111111111111111111111			1
Sum	1	00000000000000000000000000000000		N/A	0