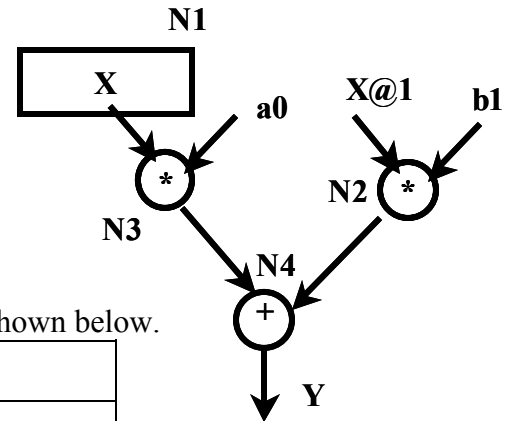


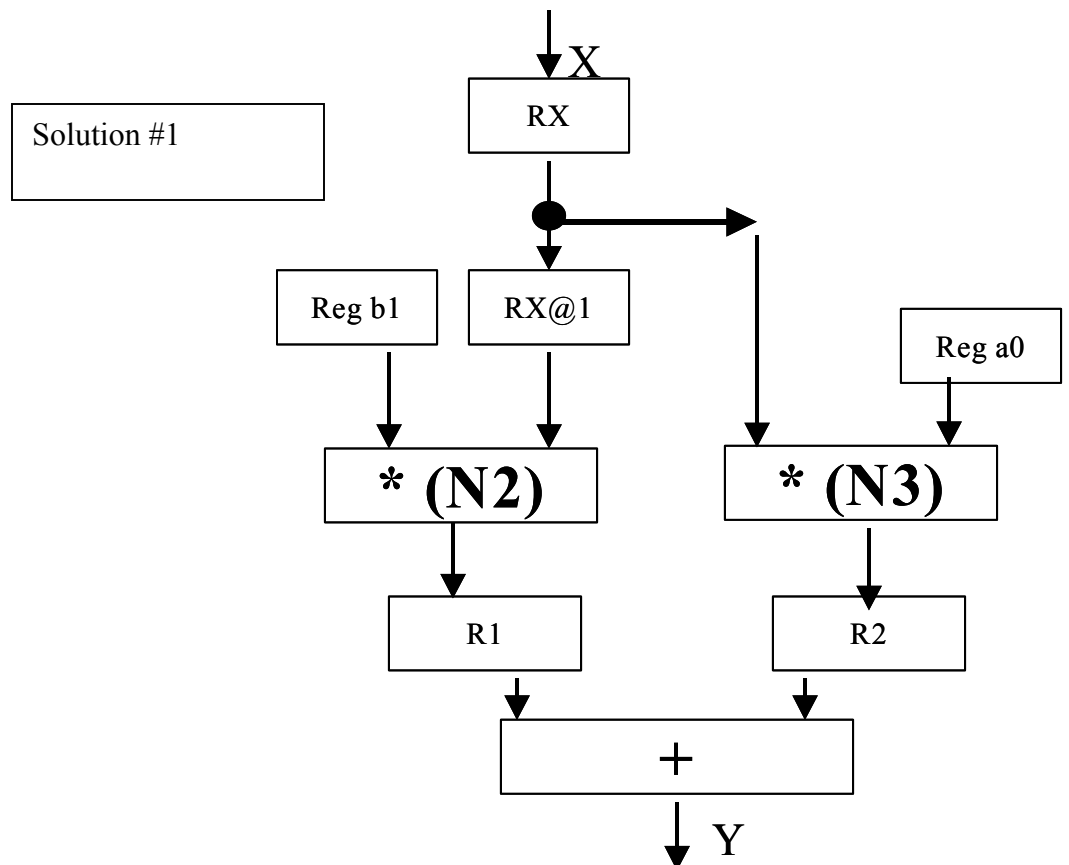
1. Create a schedule for the flowgraph above that increases the initiation rate to its maximum value. Draw the datapath for this scheule

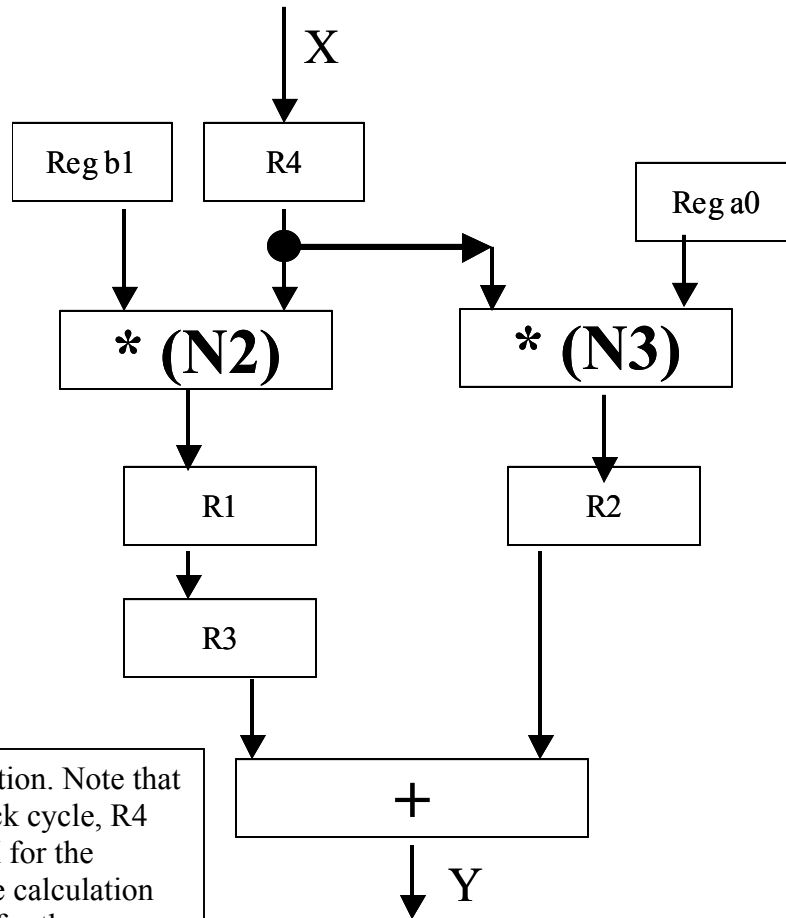
Figure 1



The schedule for initiation rate = 1, latency =3 and datapath is shown below.

	Sample A	Sample B	Sample C
Clk N	N1(\leftarrow)		
Clk N+1	N2(*), N3(*)	N1(\leftarrow)	
Clk N+2	N4(+)	N2(*), N3(*)	N1(\leftarrow)
Clk N+3		N4(+)	N2(*), N3(*)
Clk N+4			N4(+)





Alternate solution. Note that any given clock cycle, $R4$ contains the X for the current sample calculation and the $X@1$ for the previous sample period. The extra register in the lefthand path delays the $X@1 * b$ calculation by 1 clock period to align with the $X*a0$ calculation.

3. For the flowgraph below, design a schedule and datapath that will achieve the fastest initiation rate.

The value 'Y@1' is the value of the previous computation. (Hint – the fastest initiation rate is 2 --- why??? – you determine the latency)

Figure 2

	<i>Sample J</i>	<i>Sample J+1</i>
<i>Clk 1</i>	<i>N1</i>	
<i>Clk 2</i>	<i>N3, N2</i> (depends on <i>N4</i> Sample <i>J-1</i>)	
<i>Clk 3</i>	<i>N4</i>	<i>N1,</i>
<i>Clk 4</i>		<i>N3, N2</i> (depends on <i>N4</i> sample <i>J</i>)
<i>Clk 5</i>		<i>N4</i>
<i>Clk 6</i>		

