Yes, Booth recoding can reduce the overall work…

- But why do negative multipliers work all of a sudden?
  - Or, do they?

00: middle of a run of 0s, do nothing
10: beginning of a run of 1s, subtract multiplicand
11: middle of a run of 1s, do nothing
01: end of a run of 1s, add multiplicand

  - First, use a naïve algorithm to find the answer
  - Then, use Booth's recoding

4b signed example 0101
x1010

In groups, list the partial product at each step (8b) for each case, go!

Naïve Algorithm

4b signed example 0101
x1010

Remember: Negate multiplier, then negate product!
-(1010) = 0110

Product Before Shift	Product After Shift
0000 0110	0000 0011

Naïve Algorithm

4b signed example 0101
x1010

Remember: Negate multiplier, then negate product!
-(1010) = 0110

Product Before Shift	Product After Shift
0000 0110	0000 0011
0101 0011	0010 1001
0111 1001	0011 1100
0011 1100	0001 1110
Negate Product:	1110 0010
	-30

Booth's Algorithm

4b signed example 0101
x1010

Negative multiplicand: 1011

00: middle of a run of 0s, do nothing
10: beginning of a run of 1s, subtract multiplicand
11: middle of a run of 1s, do nothing
01: end of a run of 1s, add multiplicand

Product Before Shift	Product After Shift
0000 101**0 0**	0000 010**1 0**
1011 0101 0	1101 101**0 1**
0010 1010 1	0001 010**1 0**
1100 0101 0	1110 0010 0
Final Product:	1110 0010
	-30