

Homework 10

① We have done this many times with contradiction
 with $P = p_1 p_2 p_3 \dots p_n + 1$. dividing by each p gives
 a remainder of 1

②

	1s 2s 3s 4s 5s 6s 7s 8s 9s 10s								
	?	3	5	7					
10s	11	13		17		19			
20s		23				29			
30s	31			37					
40s	42	43		47					
50s		53						59	
60s	61			67					
70s	72	73						79	
80s		83						89	
90s				97					
100s	101	103		107		109			
110s		113							
120s				127					
130s	132			137		139			

$$\sqrt{140} \approx 11.8$$

- no evens but 2
- no multiples of 3, 5, 7, 11

③

$$3003 / 3 = 1001$$

$$1001 / 7 = 143$$

$$143 / 11 = 13$$

$$13 / 13 = 1$$

$$3 = 7 \cdot 11 \cdot 13$$

$$\textcircled{4} \cdot e^{100} \approx n \ln n$$

$$e^{100} \approx \ln_e(n^e) \rightarrow e^{e^{100}} = n^2$$
$$n = \sqrt{e^{e^{100}}}$$