

### Shor factoring example: $N = 33$

- DFT probability peaks (205, 410, 614, 819, ...) produce period estimates (9.9902, 4.9951, 3.3355, 2.5006, ...)
- Using  $r = 10 \approx 9.9902$ :  $(5^{10/2} - 1) * (5^{10/2} + 1) = 22 * 24$ 
  - $\text{gcd}(22, N) = 11$ ,  $\text{gcd}(24, N) = 3$ , both factors of  $N$

