Clicker Questions for February 13
(define reverse-a (lambda (lat acc)
    (cond
        [(null? lat) acc]
        [else (reverse-a (cdr lat) (cons (car lat) acc))])))

How many primitive ops (car cdr or cons) does it take this to reverse a list of length n?
A. 2
B. O(1)
C. O(n)
D. O(n^2)
E. O(n^3)
Answer C: $O(n)$
(define reverse (lambda (lat)
  (cond
    [(null? lat) acc]
    [else (append (reverse (cdr lat)) (list (car lat)))])))

How many primitive ops (car cdr or cons) does it take this to reverse a list of length n?
A. 2
B. O(1)
C. O(n)
D. O(n^2)
E. O(n^3)
Answer: It depends on how append is implemented. If it is just
\[\text{(define append (lambda (L1 L2)
  (cond
    [(null? L1) L2]
    [else (cons (car L1) (append (cdr L1) L2))]))}\]
then the answer is D: $O(n^2)$.

If the lists are doubly-linked so you can append $L1$ to $L2$ by making the tail of $L1$ point to $L2$ then append might be constant-time, so reverse would still be $O(n)$. 