

```

;; subst: Expr Symbol Expr -> Expr
;; (subst in what for) substitutes all free occurrences of
;; identifier 'what' in expression 'in' for expression 'for'
(define (subst in what for)
  (match in
    [(num n) (num n)]
    [(add l r) (add (subst l what for)
                     (subst r what for))]
    [(sub l r) (sub (subst l what for)
                    (subst r what for))]
    [(if0 c t f) (if0 (subst c what for)
                      (subst t what for)
                      (subst f what for))]
    [(with x e b)
     (with x
       (subst e what for)
       (if (symbol=? x what)
          b ; x does not occur free in b
          (subst b what for)))]
    [(id x) (if (symbol=? x what) for (id x))]))

```