THIRD QUIZ

You have 15 minutes from the start of class to complete this quiz. Read the problems with care; work with deliberate speed. Don't give us more than we ask for. The usual instructions apply. Good luck!

Problem 1 (4 points)

Evaluate each of the following expressions (including the two definitions). (That is, what does DrRacket show in the interactions window when you enter the expression(s) in the definitions window and click Run?) The functions even? and odd? are predefined functions that tell whether a number is even or odd, respectively.

```
(define TODAY 12)
(define TOMORROW 13)
```

(a) `(and (even? TODAY) (odd? TOMORROW))`

(b) `(or (even? TOMORROW) (even? TODAY))`

(c)
```
(cond
    ((number? "Hello") "Huey")
    ((number? "Sixteen") "Dewey")
    ((number? TODAY) "Louie")
    ((number? 17) "Donald")
    (else "Daisy"))
```

(d) `(not (= TODAY TOMORROW))`

(e)
```
(* 2
   (cond
      ((string=? "orange" "naranja") TODAY)
      ((string=? "apple" "apple") TOMORROW)
      (else 25)))
```

Problem 2 (5 points)

Write five check-expect expressions for the following function; choose them to provide complete coverage.

```
; take-temp:  anything  ->  string
; Return a string classifying the input as a patient's temperature (or error message)
(define take-temp
   (lambda (temperature)
      (cond
         ((not (number? temperature)) "Bad input")
         ((>= temperature 100) "High fever")
         ((> temperature 98.6) "Fever")
         ((= temperature 98.6) "Normal")
         (else "Below normal"))))
```

Problem 3 (11 points)

The cost of framing a picture depends on the material used for the frame and the size of the picture.

(a) (3 points) In the function below, fill in the blanks (one string, number, or identifier name per blank) according to the contract and purpose statement shown.

```
; price-per-inch:  string(framing material)  ->  number
; If input is "maple", output is 2.95; if input is "lacquer", output is 3.50;
; if input is "aluminum", output is 1.25; otherwise return zero.

(define price-per-inch
   (lambda (material)
      (cond
         ((string=? _____ _____) 2.95)
         ((string=? _____ _____) 3.50)
         ((string=? _____ _____) 1.25)
         (else _____)))))
```

(b) (3 points) Complete the definition of the function below according to the contract and purpose given.

```
; material-needed:  number(height)  number(width)  ->  number
; Given the height and width of a picture (in inches), return the number of
; inches of framing material required (for all four sides of the picture, of course)

(define material-needed
   (lambda (height width)
```

(c) (5 points) Complete the definition of the function below according to the contract and purpose given. Where appropriate, call the functions you defined above.

```
; frame-cost:  number(height)  number(width)  string(material)  ->  number
; Return the cost of framing a picture with the height and width specified, using
; the specified material.

(define frame-cost
   (lambda (height width material)
```

[Unless your writing is huge, you don't need the rest of the space on this page]