Problem 1

(a) 5 >= 5.5

(b) 20 > 20

(c) xor( 17 - pi < 15, pi < 3 )

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(d) true > false

(e) ~~(35/17) == (35/17)

(f ) (7 <= 8) == (3/2 == 1)

(g) 17.5 && (3.3 > 2.)

Problem 2

The tangent function is defined as tan u = sin u/cos u. This expression can be evaluated to solve for the tangent as long as the magnitude of cos u is not too near to 0. (If cos u is 0, evaluating the equation for tan u will produce the nonnumerical value Inf.) Assume that u is given in degrees, and write the MATLAB statements to evaluate tan u as long as the magnitude of cos u is greater than or equal to 10^-20. If the magnitude of cos u is less than 10^-20, write out an error message instead.

Problem 3

The following statements are intended to alert a user to dangerously high

oral thermometer readings (values are in degrees Fahrenheit). Are they correct or incorrect? If they are incorrect, explain why and correct them.

if temp < 97.5

disp('Temperature below normal');

elseif temp > 97.5

disp('Temperature normal');

elseif temp > 99.5

disp('Temperature slightly high');

elseif temp > 103.0

disp('Temperature dangerously high');

end

Problem 4

The cost of sending a package by an express delivery service is $15.00 for the first two pounds, and $5.00 for each pound or fraction thereof over two pounds. If the package weighs more than 70 pounds, a $15.00 excess weight surcharge is added to the cost. No package over 100 pounds will be accepted. Write a program that accepts the weight of a package in pounds and computes the cost of mailing the package. Be sure to handle the case of overweight packages.

Problem 5

In Example 3.3, we wrote a program to evaluate the function f(x, y) for any two user-specified values x and y, where the function f(x, y) was defined as follows:

f(x,y)=

The problem was solved by using a single if construct with four code blocks to calculate f(x, y) for all possible combinations of x and y. Rewrite program funxy to use nested if constructs, where the outer construct evaluates the value of x and the inner constructs evaluate the value of y.

Problem 6

Write a MATLAB program to evaluate the function

for any user-specified value of x, where x is a number<1.0(Note that ln is the naturan logarithm, the logarithm base e). Use an if structure to verify that the value passed to the program is legal. If the value of x is legal, calculate y(x). If not, write a suitable error message and quit.