

# Midterm A1 / A2 / B1 / B2

## Section 4 / 2 / 4 / 2

November 8, 2014

**Problem 2 / 3** [10pt]: Finish the following function. For input:  $f$  is a function so that  $f(x_j)$  returns the value of **an** interpolating polynomial at  $x_j$  and  $x$  is a row vector of values. For output:  $y$  is a row vector of the values  $f(x_j)$  for each element in  $x$ . Assume that  $f(x_j)$  only accepts *one value at a time*.

```
function y = evaluateF(f, x)
```

```
end
```

Okay. This is a *very* tricky problem. When I sat down to take this exam, I almost missed this one completely. In the previous problem, you either wrote the function  $f(x)$  as a linear system (A1 / A2) or you found a Lagrangian polynomial named  $f(x)$  (B1 / B2). In any case, you've done a lot of work to accurately describe  $f(x)$ . If this problem were stated like this

**Problem 2 / 3** [10pt]: Finish the following MATLAB function named "evaluateF." For input:  $g$  is a function so that  $g(t_j)$  returns the value of **an** interpolating polynomial at  $t_j$  and  $t$  is a row vector of values. For output:  $y$  is a row vector of the values  $g(t_j)$  for each element in  $t$ . Assume that  $g(x_j)$  only accepts one value at a time.

```
function y = evaluateF( g, t )
```

```
end
```

then what we were asking may have been a bit more clear. The first part of solving this problem is recognizing that