Problem 2

November 5, 2016

$$l(x) = -\frac{x-b}{a-b} + \frac{x-a}{b-a}$$

In [1]:
```
"""
‘chebspace‘
===========

A Chebyshev analog of linspace for polynomial interpolation

* ‘chebspace(a,b)‘ generates an array of 100 Chebyshev points
between ‘a‘ and ‘b‘
* ‘chebspace(a,b,n)‘ generates an array of ‘n‘ points between a, b
and for ‘n=1‘, this returns b.
function chebspace(a,b,n)
# fill this in!
end
function chebspace(a,b)
    return chebspace(a,b,100)
end
"""
function chebspace(a,b,n=100)
    x = zeros(n,1)
    if n==1
        return b
    else
        for i=1:n
            x[i] = (a+b)/2 + (b-a)/2 * cos((2*i-1)/(2*n)*pi)
        end
        return x
    end
end
```

Out[1]:
```
chebspace (generic function with 2 methods)
```

In [2]:
```
chebspace(-5,5)
```

Out[2]:
```
100x1 Array{Float64,2}:
  4.99938
  4.99445
  4.98459
  4.9698
  4.95012
  4.92555
  4.89611
```

```
 4.86185
 4.82279
 4.77897
 4.73043
 4.67722
 4.6194
 ⋮
-4.67722
-4.73043
-4.77897
-4.82279
-4.86185
-4.89611
-4.92555
-4.95012
-4.9698
-4.98459
-4.99445
-4.99938
```

In [ ]: