

Math128B  
 May. 6, 2005  
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 Homework 11 Solutions

file	function
<a href="#">Hmwk11Main.m</a>	calls CreateBkN, Langrange, FormatPoly calls SchoenbergWhitney calls Bezier
<a href="#">CreateBkN.m</a>	creates Bspline of order k with N discretization points between each pair of knot points
<a href="#">Lagrange.m</a>	implements Program 4.1 (p. 217) of Mathews & Fink
<a href="#">FormatPoly.m</a>	displays formatted polynomial given coefficient array
<a href="#">SchoenbergWhitney.m</a>	implements Schoenberg-Whitney criteria (p. 22) of de Boor's notes
<a href="#">Bezier.m</a>	implements Definition 5.6 (p. 312) of Mathews & Fink
<a href="#">Binomial.m</a>	returns array of binomial coefficients $\binom{n}{k}$ using table look-up

A diary of the output follows:

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```

%%%%%%%%%%
Problem #11.1
%%%%%%%%%%
multiple knot point at t1 = 0

polynomial for B14 on [t2, t3] = [0, 1]
- 0.5x^3 + 1x^2 - 5.5511e-017x

polynomial for B14 on [t3, t4] = [1, 3]
0.1x^3 - 0.8x^2 + 1.8x - 0.6

polynomial for B14 on [t4, t5] = [3, 6]
- 0.011111x^3 + 0.2x^2 - 1.2x + 2.4

%%%%%%%%%%
Problem #11.2
%%%%%%%%%%
Using t = [0 3 5 6]
Using tau = [0.1 0.1 4.1]
SchoenbergWhitney test failed

Using t = [1 3 6 10]
Using tau = [3.1 9.1]
SchoenbergWhitney test passed

Using t = [11 12 17 17]
Using tau = [0.1 15.1]
SchoenbergWhitney test failed

Using t = [0 0 2 5]
Using tau = [2.1]
SchoenbergWhitney test passed

```

## Problem 11.3

