Name _____

11-7A Lesson Master

Questions on SPUR Objectives
See Student Edition pages 792–795 for objectives.

SKILLS Objective D

In 1 and 2, complete the table of function values below and find the first three sets of finite differences.

1. $y = 2x^3 - 4x$

x	−2	−1	0	1	2	3
y						

1st differences   _____ _____ _____ _____ _____

2nd differences   _____ _____ _____ _____

3rd differences   _____ _____ _____

2. $y = 4 \cdot 2^x$

x	−2	−1	0	1	2	3
y						

1st differences   _____ _____ _____ _____ _____

2nd differences   _____ _____ _____ _____

3rd differences   _____ _____ _____

3. You should have found that the third differences are equal for one of the above functions, but not for the other. Explain this result.

_____

_____

Fill in the Blanks In 4 and 5, fill in the blank so that the sentence is always true.

4. If a polynomial has degree 8, the _____ differences will be the first set of differences that are equal.

5. If a set of x-values form an arithmetic sequence, and the set of 5th differences of the corresponding y-values are equal and the set of 4th differences of the corresponding y-values are not equal, a polynomial of degree _____ will fit the data.

In 6–8, determine whether there is a polynomial of degree four or less that will fit the data. If so, find the degree of the polynomial.

6.

x	0	1	2	3	4	5
y	−2	3	8	15	31	68

7.

x	10	15	20	25	30	35
y	−12	−4	2	6	8	8

_____   _____

8. The first six terms of an arithmetic sequence with first term 12 and a common difference of −3.   _____