Lesson 3: The Division of Polynomials

Opening Exercise

* 1. Multiply these polynomials using the tabular method.
  2. How can you use the expression in part (a) to quickly multiply ?

Exploratory Challenge

1. Does ? Justify your answer.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

1. Describe the process you used to determine your answer to Exercise 1.
2. Reverse the tabular method of multiplication to find the quotient: .

|  |  |  |  |
| --- | --- | --- | --- |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

1. Test your conjectures. Create your own table and use the *reverse tabular method* to find the quotient.
2. Test your conjectures. Use the *reverse tabular method* to find the quotient.
3. What is the quotient of ? Of ?

Problem Set

Use the reverse tabular method to solve these division problems.

1. Use the results of Problems 7 and 8 to predict the quotient of .   
   Explain your prediction. Then check your prediction using the reverse tabular method.
2. Use the results of Exercise 5 in the Exploratory Challenge and Problems 7 through 9 above to predict the quotient of . Explain your prediction. Then check your prediction using the reverse tabular method.
3. Make and test a conjecture about the quotient of . Explain your reasoning.
4. Given the following quotients:
   1. How are these expressions related?
   2. Find each quotient.
   3. Explain the connection between the quotients.