## Unit 2 Lesson 12: Polynomial Division (Part 1)

### 1 Notice and Wonder: A Different Use for Diagrams (Warm up)

#### Student Task Statement

What do you notice? What do you wonder?

A.

|  |  | 5 |
| --- | --- | --- |
|  |  |  |
| -3 |  | -15 |

B.

|  |  |  | -4 |
| --- | --- | --- | --- |
|  |  |  |  |
| -1 |  |  | +4 |

C.

|  |  |  |  |
| --- | --- | --- | --- |
|  |  |  |  |
| -2 |  |  |  |

### 2 Factoring with Diagrams

#### Student Task Statement

Priya wants to sketch a graph of the polynomial defined by . She knows , so she suspects that could be a factor of and writes  and draws a diagram.

|  |  |  |  |
| --- | --- | --- | --- |
|  |  |  |  |
| -1 |  |  |  |

1. Finish Priya’s diagram.
2. Write as the product of and another factor.
3. Write as the product of three linear factors.
4. Make a sketch of .



### 3 More Factoring with Diagrams

#### Student Task Statement

Here are some polynomial functions with known factors. Rewrite each polynomial as a product of linear factors. Note: you may not need to use all the columns in each diagram. For some problems, you may need to make another diagram.

1. ,

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  |  | * 0 |  |  |  |
| * -7 |  |  |  |  |  |

1. ,

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

1. ,

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |
| * 3 |  |  |  |  |  |

1. , ,

* (Hint: )

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

1. , , ,

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



© CC BY 2019 by Illustrative Mathematics®