## Unit 2 Lesson 5: Connecting Factors and Zeros

### 1 Notice and Wonder: Factored Form (Warm up)

#### Student Task Statement

What do you notice? What do you wonder?

$f(x)=(x+5)(x+1)(x−3)$



$g(x)=(x+5)(x+1)(x−2)$



$h(x)=(x+4)(x+1)(x−2)$



### 2 What Values of $x$ Make These Equations True?

#### Student Task Statement

Find all values of $x$ that make the equation true.

1. $(x+4)(x+2)(x−1)=0$
2. $(x+4)(x+2)(x−1)(x−3)=0$
3. $(x+4)^{2}(x+2)^{2}=0$
4. $-2(x−4)(x−2)(x+1)(x+3)=0$
5. $(2x+8)(7x−3)(x−10)=0$
6. $x^{2}+3x−4=0$
7. $x(3−x)(x−1)(x+0.75)=0$
8. $(x^{2}−4)(x+9)=0$

### 3 Factors, Intercepts, and Graphs

#### Student Task Statement

Your teacher will give you a set of cards. Match each equation to either a graph or a description.

Take turns with your partner to match an equation with a graph or a description of a graph.

1. For each match that you find, explain to your partner how you know it’s a match.
2. For each match that your partner finds, listen carefully to their explanation. If you disagree, discuss your thinking and work to reach an agreement.



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