## Unit 3 Lesson 7: Inequivalent Equations

### 1 2 and -2 (Warm up)

#### Student Task Statement

What do you notice? What do you wonder?

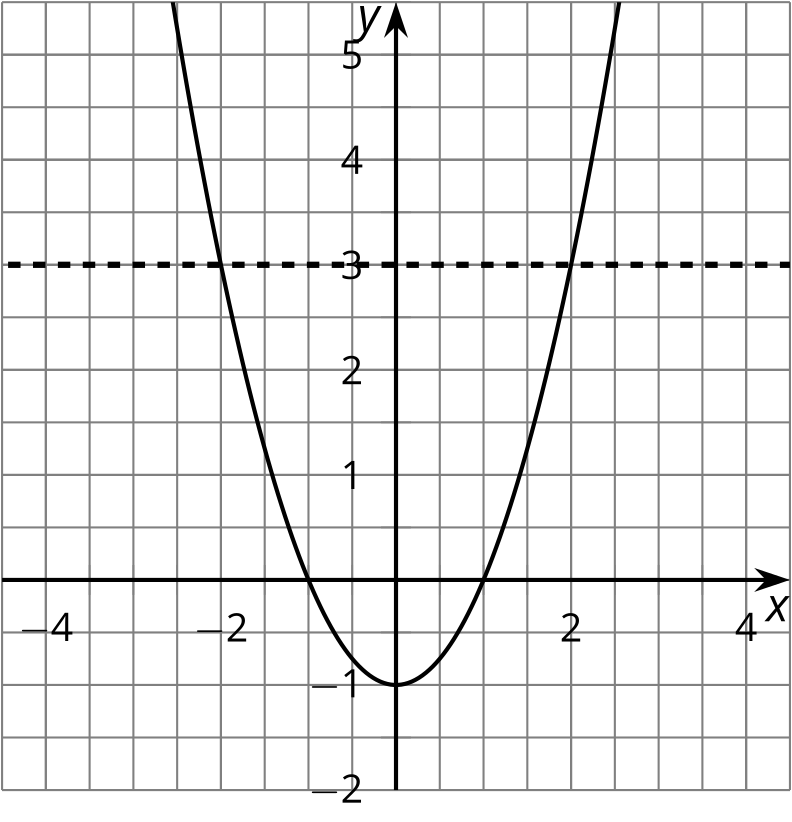
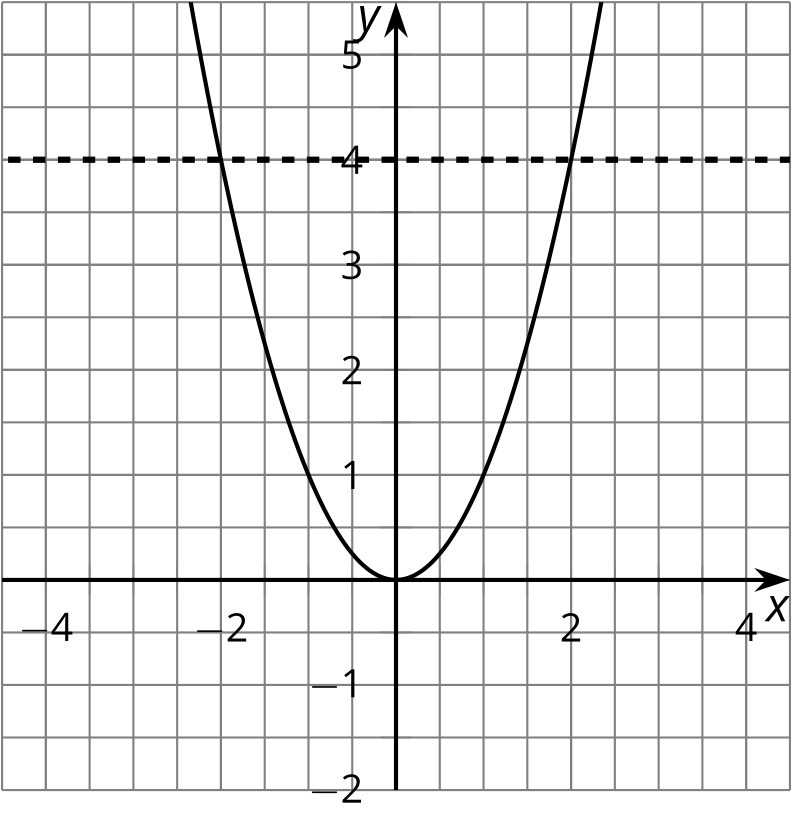
### 2 Careful When You Take the Square Root

#### Student Task Statement

Tyler was solving this equation:

He said, “I can add 1 to each side of the equation and it doesn’t change the equation. I get .”

1. Priya said, “It does change the equation. It just doesn’t change the solutions!” Then she showed these two graphs.

* Figure A
* 
* Figure B
* 
  1. How can you see the solution to the equation in Figure A?
  2. How can you see the solution to the equation in Figure B?
  3. Use the graphs to explain why the equations have the same solutions.

1. Tyler said, “Now I can take the square root of each side to get the solution to . The square root of is . The square root of 4 is 2.” He wrote:

* Priya said, “But the graphs show that there are *two* solutions!” What went wrong?

### 3 Another Way to Solve

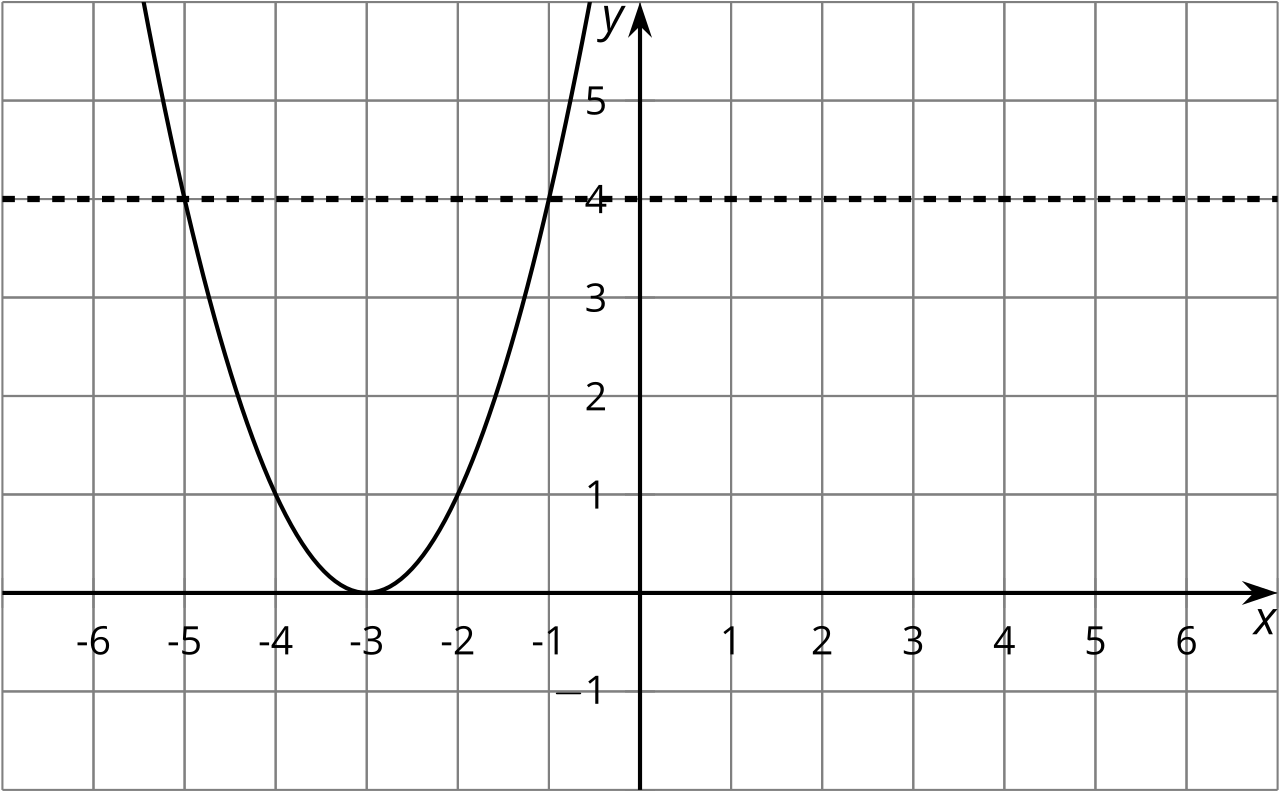
#### Student Task Statement

Han was solving this equation:

He said, "I know that half of is 4. So must be 8, since half of 8 is 4. This means that is 5."

1. Use Han's reasoning to solve this equation: .
2. What advice would you give to someone who was going to solve an equation like ?

#### Activity Synthesis



### 4 What Happens When You Square Each Side?

#### Student Task Statement

Mai was solving this equation:

She said, “I can square each side of the equation to get another equation with the same solutions.” Then she wrote:

1. Check to see if her solution makes the original equation true.
2. Andre said, “I tried your technique to solve but it didn’t work.” Why doesn’t it work? Explain or show your reasoning.

### 5 Solve These Equations With Square Roots in Them (Optional)

#### Student Task Statement

Find the solution(s) to each of these equations, or explain why there is no solution.



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