

NAME: _____

UNIT 2 • REASONING WITH EQUATIONS AND INEQUALITIES

Lesson 1: Solving Equations and Inequalities

Problem-Based Task 2.1.1: Magic Number

Try this magic number game.

Think of a number. Then double it. Now add 6. Take half of that number. Finally, subtract the number you started with.

Your answer is 3.

Will your answer always be 3? How is this possible? Use the properties of equality to justify your reasoning.

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Problem-Based Task 2.1.1: Magic Number

Coaching

- a. What number did you think of?

- b. What expression represents doubling your number?

- c. How can you show adding 6 to the expression from part b?

- d. How can you show taking half of the expression from part c?

- e. How can you show subtracting the number you originally thought of from the expression in part d?

- f. How can you show that the result of the operations in parts b through e will always result in 3?

- g. How can you modify your equation in part f to work with any number?

- h. How can your equation from part g be simplified?