

Unit 2, Activity 3, Proof Puzzle

Please print two copies of each proof—one to be cut up and one to be used as an Answer Key.

Cut the statements and reasons in the following proofs into strips and put them in envelopes to have the students arrange in the correct order. If students need help identifying the strips as either a statement or reason, put all of the statements from one proof in one envelope and the reasons for the proof in a separate envelope. Label the envelopes Statements Proof # and Reasons Proof #. The statements and reasons are not numbered below, but the order in which they are presented is the order that the students should have when their work is completed.

Proof #1

Given: $4(x-2)=52$	
Prove: $x=15$	
Statements	Reasons
$4(x-2)=52$	Given
$4x-8=52$	Distributive Property
$4x-8+8=52+8$	Addition Property
$4x=60$	Simplification
$\frac{4x}{4}=\frac{60}{4}$	Division Property
$x=15$	Simplification

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Proof #2

Given: $3(2-4a)-3(a+6)=123$	
Prove: $x=-9$	
Statements	Reasons
$3(2-4a)-3(a+6)=123$	Given
$6-12a-3a-18=123$	Distributive Property
$-12-15a=123$	Simplification
$-12-15a+12=123+12$	Addition Property
$-15a=135$	Simplification
$\frac{-15a}{-15} = \frac{135}{-15}$	Division Property
$x=-9$	Simplification

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Proof #3

Given: $\frac{2x+6}{5} = 2$	
Prove: $x = 2$	
Statements	Reasons
$\frac{2x+6}{5} = 2$	Given
$5\left(\frac{2x+6}{5}\right) = 5(2)$	Multiplication Property
$2x+6=10$	Simplification
$2x+6-6=10-6$	Subtraction Property
$2x=4$	Simplification
$\frac{2x}{2} = \frac{4}{2}$	Division Property
$x=2$	Simplification

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Proof #4

Given: $4 - \frac{1}{2}a = \frac{7}{2} - a$	
Prove: $a = -1$	
Statements	Reasons
$4 - \frac{1}{2}a = \frac{7}{2} - a$	Given
$2\left(4 - \frac{1}{2}a\right) = 2\left(\frac{7}{2} - a\right)$	Multiplication Property
$8 - a = 7 - 2a$	Simplification
$8 - a - 8 = 7 - 2a - 8$	Subtraction Property
$-a = -2a - 1$	Simplification
$-a + 2a = -2a - 1 + 2a$	Addition Property
$a = -1$	Simplification