

# Practice 2.3: Writing Proofs

Support each statement by writing a conclusion with a valid reason.

1. Given:  $2x = 72$  Conclusion:  $x = 36$  Reason: Division Property
2. Given:  $\angle A$  and  $\angle B$  are rt. angles Conclusion: Angles A and B are congruent Reason: All Right Angles are Congruent
3. Given:  $X$  is the midpoint of  $\overline{DR}$  Conclusion:  $DX = XR$  Reason: Def of midpt

**Directions:** Complete the following proofs.

Given: $10x + 4 = 44$ Prove: $x = 4$	
Statement	Reason
1. $10x + 4 = 44$	1. Given
2. $10x = 40$	2. Subtraction Property
3. $x = 4$	3. Division Property

Proof #1

Given: $1 - x = 11$ Prove: $x = 0$	
Statement	Reason
1. $1 - x = 11$	1. Given
2. $-x = 10$	2. Subtraction Property
3. $x = -10$	3. Mult/Div Property

Proof #2

Given: $10x + 42 = 20 - x$ Prove: $x = -2$	
Statement	Reason
1. $10x + 42 = 20 - x$	1. Given
2. $11x + 42 = 20$	2. Addition Property
3. $11x = -22$	3. Subtraction Property
4. $x = -2$	4. Division Property

Proof #3

Given: $6x - (4x - 1) = 2$ Prove: $x = 1/2$	
Statement	Reason
1. $6x - (4x - 1) = 2$	1. Given
2. $6x - 4x + 1 = 2$	2. Distributive Property
3. $2x + 1 = 2$	3. Combine Like Terms
4. $2x = 1$	4. Subtraction Property
5. $x = 1/2$	5. Division Property

Proof #4

Given: $13 - 4(x - 2) - 41 = 0$ Prove: $x = -5$	
Statement	Reason
1. $13 - 4(x - 2) - 41 = 0$	1. Given
2. $-28 - 4(x - 2) = 0$	2. Combine Like Terms
3. $-4(x - 2) = 28$	3. Addition Property
4. $x - 2 = -7$	4. Division property (Div by -4)
5. $x = -5$	5. Addition Property
6.	6.

Proof #5

There are other correct proofs for #5 possible....