

For each example, write a statement and justification for each step.

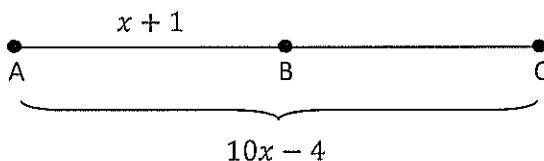
Example 1:

Given:  $2x^2 - 5 = 195$   
 $x > 0$  (RESTRICTION)  
 Prove:  $x = 10$

Statement	Justification
1. $2x^2 - 5 = 195$	1. Given
2. $2x^2 = 200$	2. Addition P.O.E
3. $x^2 = 100$	3. Division P.O.E
4. $x = 10$ or $x = -10$	4. Def. of Sq. Root
5. $x > 0$	5. Given
6. $x = 10$	6. OK Kulu

Example 2:

Given: Figure at the right.  
 B is the midpoint of  $\overline{AC}$ .  
 Prove:  $x = \frac{3}{4}$



Statement	Justification
1. B is the midpt. of $\overline{AC}$	1. Given
2. $\overline{AB} \cong \overline{BC}$	2. Def. of a midpt.
3. $AB = BC$	3. Def. of congruence
4. $AB = x + 1, AC = 10x - 4$	4. Given
5. $BC = x + 1$	5. Substitution P.O.E
6. $AB + BC = AC$	6. Segment Addition Post.
7. $x + 1 + x + 1 = 10x - 4$	7. Substitution P.O.E
8. $2x + 2 = 10x - 4$	8. Simplify (CLT)
9. $-8x + 2 = -4$	9. Subtraction P.O.E.
10. $-8x = -6$	10. Subtraction P.O.E.
11. $x = \frac{3}{4}$	11. Division P.O.E.

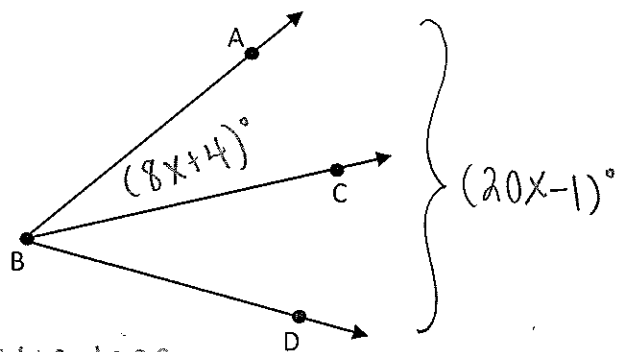
Example 3:

Given: Figure at the right.

$\overrightarrow{BC}$  bisects  $\angle ABD$ ,

$m\angle ABC = (8x + 4)^\circ$ ,  $m\angle ABD = (20x - 1)^\circ$

Prove:  $x = \frac{17}{4}$   $x = 9\frac{1}{4}$



Statement	Justification
1. $\overrightarrow{BC}$ bisects $\angle ABD$	1. Given
2. $\angle ABC \cong \angle CBD$	2. Def of angle bisector
3. $m\angle ABC = m\angle CBD$	3. Def of congruence
4. $m\angle ABC = (8x + 4)^\circ$ , $m\angle ABD = (20x - 1)^\circ$	4. Given
5. $m\angle CBD = (8x + 4)^\circ$	5. Substitution P.O.E.
6. $m\angle ABC + m\angle CBD = m\angle ABD$	6. Angle Addition Post.
7. $8x + 4 + 8x + 4 = 20x - 1$	7. Substitution P.O.E.
8. $16x + 8 = 20x - 1$	8. Simplify (CLT)
9. $-4x + 8 = -1$	9. Subtraction P.O.E.
10. $-4x = -9$	10. Subtraction P.O.E.
11. $x = 9\frac{1}{4}$	11. Division P.O.E.