Secondary Math 2 1.1 Homework Name: Key Period: ____

Directions: Starting with the given, prove the following.

1) Given: $5x+1=21$

Prove: $x=4$

Statement	Reason
1. $5x+1=21$	1. Given
2. $5x=20$	2. Subtraction Property
3. $x=4$	3. Division Property

2) Fill in the missing parts of the proof.

Given: $5(x+3)=-4$

Prove: $x=-\frac{19}{5}$

Statement	Reason
1. $5(x+3)=-4$	1. Given
2. $5x+15=-4$	2. Distributive Property
3. $5x=-19$	3. Subtraction Property
4. $x=-\frac{19}{5}$	4. Division Property

3) Given: $2x+1=7$

Prove: $x=3$

Statement	Reason
1. $2x+1=7$	1. Given
2. $2x=6$	2. Subtraction Property
3. $x=3$	3. Division Property

4) Given: $5x-18=3x+2$

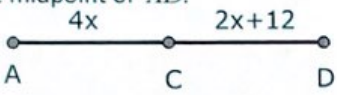
Prove: $x=10$

Statement	Reason
1. $5x-18=3x+2$	1. Given
2. $5x=3x+20$	2. Addition Property
3. $2x=20$	3. Subtraction Property
4. $x=10$	4. Division Property

5) Fill in the missing parts of the proof.

Given: C is the midpoint of $\overline{AD}$.

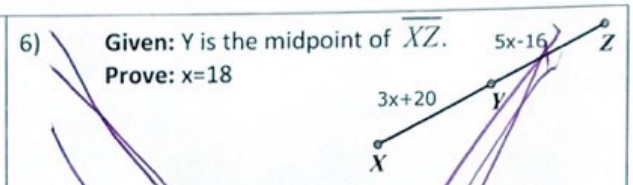
Prove: x=6



Statement	Reason
1. C is the midpoint of $\overline{AD}$	1. Given
2. $\overline{AC} \cong \overline{DC}$	2. Midpoint Theorem
3. $4x = 2x + 12$	3. Substitution Property
4. $2x = 12$	4. Subtraction
5. $x = 6$	5. Division Property

6) **Given:** Y is the midpoint of $\overline{XZ}$.

Prove: x=18



Statement	Reason
1.	1.
2.	2. ~~is~~ midpoint theorem
3.	3. Substitution
4. $-2x = -36$	4.
5.	5.

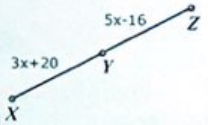
7) **Given:** HK = 42

Prove: x=5

Statement	Reason
1. $\overline{HK} = 42$	1. Given
2. $\overline{HJ} + \overline{JK} = HK$	2. Segment addition postulate
3. $3(x+4)+3x = 42$	3. Substitution
4. $3x + 12 + 3x = 42$	4. Distribution
5. $6x + 12 = 42$	5. Combine like terms
6. $6x = 30$	6. Subtraction
7. $x = 5$	7. Division

8) **Given:** $XZ = 36$

Prove: x=4



Statement	Reason
1. $XZ = 36$	1. Given
2. $XY + YZ = XZ$	2. Segment Addition Postulate
3. $3x+20+5x-16=36$	3. substitution
4. $8x + 4 = 36$	4. Combine Like Terms
5. $8x = 32$	5. Subtraction
6. $x = 4$	6. Division