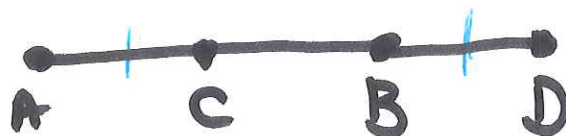


Midpoint and Algebra Proofs Practice

1. Given: Point C is the midpoint of  $\overline{AB}$

Point B is the midpoint of  $\overline{CD}$

Prove:  $\overline{AC} \cong \overline{BD}$



S	R
1. Point C MP of $\overline{AB}$ Point B MP of $\overline{CD}$	1. Given
2. $\overline{AC} \cong \overline{CB}$ & $\overline{CB} \cong \overline{BD}$	2. MP Theorem
3. $\overline{AC} \cong \overline{BD}$	3. Transitive

2. Given: Point F is the midpoint of  $\overline{EG}$

Prove:  $\overline{EF} \cong \overline{FG}$



S	R
1. Pt F MP $\overline{EG}$	1. Given
2. $EF = FG$	2. Def'n MP
3. $\overline{EF} \cong \overline{FG}$	3. Def'n $\cong$

3. State the property that justifies each statement:

a. If  $m\angle A = m\angle B$  and  $m\angle B = m\angle C$ ,  $m\angle A = m\angle C$ . Transitive

b. If  $HJ + 5 = 20$ , then  $HJ = 15$ . Substitution ~~Subtraction~~

c. If  $XY + 20 = YW$  and  $XY + 20 = DT$ , then  $YW = DT$ .  
Substitution

d. If  $m\angle 1 + m\angle 2 = 90$  and  $m\angle 2 = m\angle 3$ , then  $m\angle 1 + m\angle 3 = 90$ .  
Substitution

e. If  $\frac{1}{2}AB = \frac{1}{2}EF$ , then  $AB = EF$ . Division or Mult.

f.  $AB = AB$ . Reflexive

4. Write a two-column proof:

a. Given:  $2x - 7 = \frac{1}{3}x - 2$   
Prove:  $x = 3$

b. Given:  $\frac{3x+5}{2} = 7$   
Prove:  $x = 3$

S	R	S	R
1. $2x - 7 = \frac{1}{3}x - 2$	1. Given	1. $\frac{3x+5}{2} = 7$	1. Given
2. $2x - 7 + 7 = \frac{1}{3}x - 2 + 7$	2. Addition P	2. $2\left(\frac{3x+5}{2}\right) = 2 \cdot 7$	2. multiplication
3. $2x = \frac{1}{3}x + 5$	3. Substitution	3. $3x + 5 = 14$	3. Substitution
4. $2x - \frac{1}{3}x = \frac{1}{3}x + 5 - \frac{1}{3}x$	4. Subtraction P	4. $3x + 5 - 5 = 14 - 5$	4. Subtraction
5. $\frac{5}{3}x = 5$	5. Substitution	5. $3x = 9$	5. Substitution
6. $\frac{3}{5} \cdot \frac{5}{3}x = \frac{3}{5} \cdot 5$	6. Multiplication	6. $\frac{3x}{3} = \frac{9}{3}$	6. Division
7. $x = 3$	7. Substitution	7. $x = 3$	7. Substitution