Classroom Exercises

Justify each statement with a property from algebra or a property of congruence.

1. $\angle P \cong \angle P$

2. If $\overline{AB} \cong \overline{CD}$ and $\overline{CD} \cong \overline{EF}$, then $\overline{AB} \cong \overline{EF}$.

3. If $RS = TW$, then $TW = RS$.

4. If $x + 5 = 16$, then $x = 11$.

5. If $5y = -20$, then $y = -4$.

6. If $\frac{z}{5} = 10$, then $z = 50$.

7. $2(a + b) = 2a + 2b$

8. If $2z - 5 = -3$, then $2z = 2$.

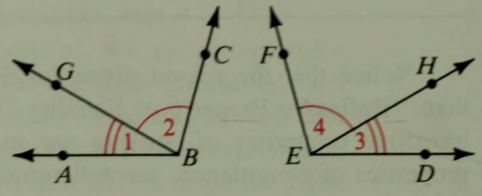
9. If $2x + y = 70$ and $y = 3x$, then $2x + 3x = 70$.

10. If $AB = CD$, $CD = EF$, and $EF = 23$, then $AB = 23$.

Complete each proof by supplying missing reasons and statements.

11. Given: $m\angle 1 = m\angle 3$;
$m\angle 2 = m\angle 4$

Prove: $m\angle ABC = m\angle DEF$

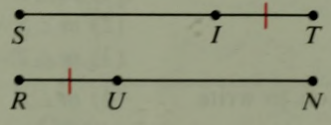


Proof:

Statements	Reasons
1. $m\angle 1 = m\angle 3$; $m\angle 2 = m\angle 4$	1. ? given
2. $m\angle 1 + m\angle 2 = m\angle 3 + m\angle 4$	2. ? add. property of =
3. $m\angle 1 + m\angle 2 = m\angle ABC$; $m\angle 3 + m\angle 4 = m\angle DEF$	3. ? angle addition postulate
4. $m\angle ABC = m\angle DEF$	4. ? substitution

12. Given: $ST = RN$; $IT = RU$

Prove: $SI = UN$



Proof:

Statements	Reasons
1. $ST = RN$	1. ?
2. ? $= SI + IT$; ? $= RU + UN$	2. ?
3. $SI + IT = RU + UN$	3. ?
4. $IT = RU$	4. ?
5. ?	5. ?