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2.4-2.5 Worksheet

**Name the property of equality or congruence that justifies each statement.**

1. If $∠A≅∠B$, then $∠B≅∠A$. 2. If $x+3=17$, then $x=14$.

3. $\overbar{XY}=\overbar{XY}$. 4. If $7x=42$, then $x=6$.

5. If $XY–YZ=XM$, then $XY=XM+YZ$. 6. $2(x+4)=2x+8$.

7. If $m∠A+m∠B=90$ and $m∠A=30$, 8. If $x=y+3$ and $y+3=10$, then $x=10$.

 then $30+m∠B=90$.

9. If = 8, then x + 4 = 24. 10. If $AB=CD$, then $AB–EF=CD–EF$.

**Complete each proof by filling in the missing statements or reasons.**

11. Given: 2(x – 3) = 8

 Prove: x = 7

 **Proof:**

 **Statements Reasons**

 a. 2(x – 3) = 8 a.

 b. 2x – 6 = 8 b.

 c. 2x = 14 c.

 d. x = 7 d.

12. Given: 3x – 4 = ½ x + 6

 Prove: x = 4

 **Proof:**

 **Statements Reasons**

 a. 3x – 4 = ½ x + 6 a.

 b. 2(3x – 4) = 2(½ x + 6) b.

 c. 6x – 8 = x + 12 c.

 d. 5x – 8 = 12 d.

 e. 5x = 20 e.

 f. x = 4 f.

13. **Given:** $m∠ABC=80°$

 **Prove:** $x=8$

 **Statements Reasons**

 a. a.

 b. b. Angle Addition Postulate

 c. $\left(3x+3\right)+\left(6x+5\right)=80$ c.

 d. $9x+8=80$ d.

 e. e. Subtraction Property of Equality

 f. f.

14. **Given:** *E* is the midpoint of $\overbar{DF}$.

 **Prove:** *DE* = 23

 **Statements Reasons**

 a. *E* is the midpoint of $\overbar{DF}$ a.

 b. b. Definition of midpoint

 c. $6x+5=8x-1$ c.

 d. $5=2x-1$ d.

 e. e. Addition Property of Equality

 f. f.

 g. $DE=6x+5$ g. Given

 h. $DE=6\left(3\right)+5$ h.

 i. i.

**Write a two-column proof.**

15. **Given:** $XY=YZ$

 **Proof:** $m=6$

16. **Given:** $∠QWT and ∠TWX are complementary$

 **Prove:** $x=28$

17. **Given:** *m*∠*PMN* = *m*∠*RBC*

 **Prove:** *m*∠*ABR* + *m*∠*PMN* = *m*∠*ABC*