NAME_____DATE_____PER._____

3.3 & 3.4 – Proving Lines Parallel & Perpendicular Lines

Use the theorems and given information to show that $n \parallel m$.

1. $\angle 3 \cong \angle 7$

2. $m\angle 4 = 54°$, $m\angle 8 = (7x + 5)°$, $x = 7$

3. $m\angle 2 = (8x + 4)°$, $m\angle 6 = (11x - 41)°$, $x = 15$

4. $m\angle 1 = (3x + 19)°$, $m\angle 5 = (4x + 7)°$, $x = 12$

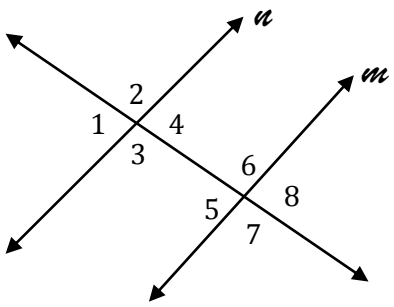
5. $\angle 3 \cong \angle 6$

6. $m\angle 4 + m\angle 6 = 180°$

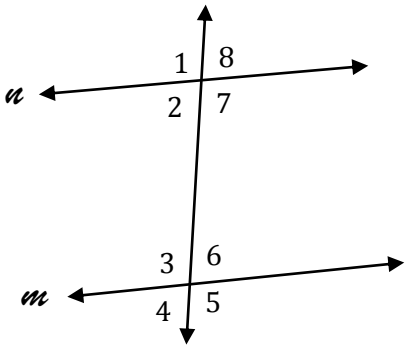
7. $m\angle 1 = (8x - 7)°$, $m\angle 8 = (6x + 21)°$, $x = 14$

8. $m\angle 4 = (4x + 3)°$, $m\angle 5 = (5x - 22)°$, $x = 25$

9. $m\angle 3 = (2x + 15)°$, $m\angle 5 = (3x + 15)°$, $x = 30$



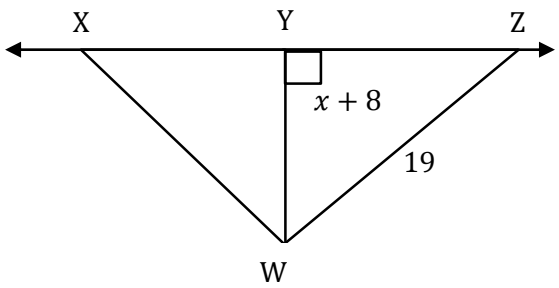
Name the postulate or theorem that proves that $n \parallel m$.

10. $\angle 8 \cong \angle 6$	
11. $\angle 8 \cong \angle 4$	
12. $\angle 2 \cong \angle 6$	
13. $\angle 7 \cong \angle 5$	
14. $\angle 3 \cong \angle 7$	
15. $m\angle 2 + m\angle 3 = 180°$	

Use the diagram to answer the following.

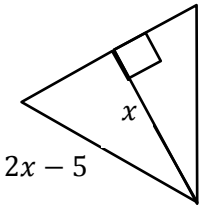
16. Name the shortest segment from point W to $\overleftrightarrow{XZ}$.

Write and solve an inequality for x.

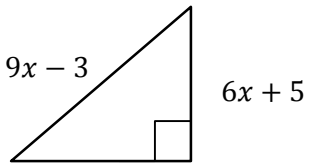


For each diagram, write and solve an inequality for x.

17.

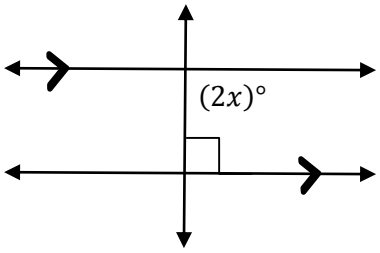


18.

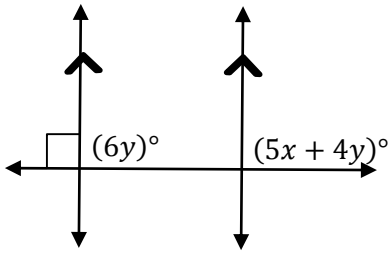


Solve to find x and y in each diagram.

19.



20.



Determine if there is enough information given in the diagram to prove each statement. Answer yes or no.

21. $\angle 1 \cong \angle 2$ _____

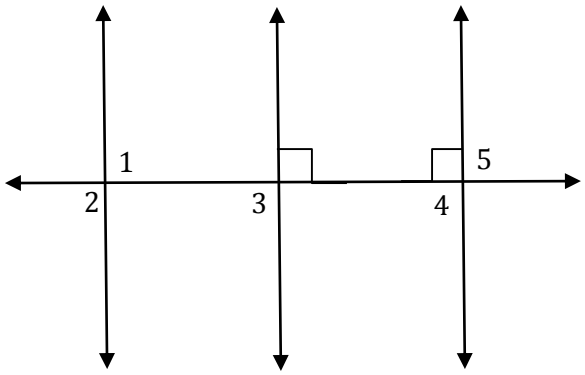
22. $\angle 1 \cong \angle 3$ _____

23. $\angle 2 \cong \angle 3$ _____

24. $\angle 2 \cong \angle 4$ _____

25. $\angle 3 \cong \angle 4$ _____

26. $\angle 3 \cong \angle 5$ _____



Find the measure of each angle.

27. The supplement of $\angle DJE$

28. The complement of $\angle FJG$

29. The supplement of $\angle GJH$