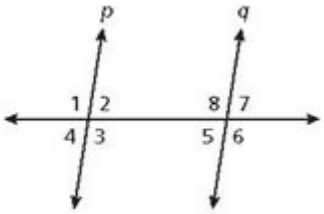
3.3 Homework # 2,-8 even,11, 14, 24, 25, 26, 28

Use the Converse of the Corresponding Angles Postulate and the given information to show that $p \parallel q$.



1. $\angle 4 \cong \angle 5$
2. $m\angle 1 = (4x + 16)^\circ$, $m\angle 8 = (5x - 12)^\circ$, $x = 28$
3. $m\angle 4 = (6x - 19)^\circ$, $m\angle 5 = (3x + 14)^\circ$, $x = 11$

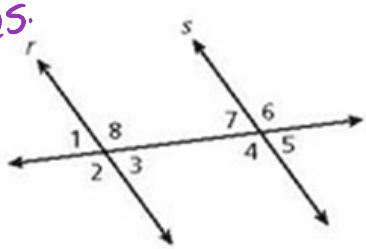
2) $\boxed{\measuredangle 1}$
$4(28)+16$
$112+16$
128°

$\boxed{\measuredangle 8}$
$5(28)-12$
$140-12$
128°

$\measuredangle 1 \cong \measuredangle 8$

If corr. $\measuredangle$s are $\cong$, then lines are $\parallel$.

Use the theorems and given information to show that $r \parallel s$.



4. $\angle 1 \cong \angle 5$ If alt. ext. $\measuredangle$s are $\cong$, then $\parallel$ lines.
5. $m\angle 3 + m\angle 4 = 180^\circ$
6. $\angle 3 \cong \angle 7$ If alt. int. $\measuredangle$s are $\cong$, then $\parallel$ lines.
7. $m\angle 4 = (13x - 4)^\circ$, $m\angle 8 = (9x + 16)^\circ$, $x = 5$
8. $m\angle 8 = (17x + 37)^\circ$, $m\angle 7 = (9x - 13)^\circ$, $x = 6$
9. $m\angle 2 = (25x + 7)^\circ$, $m\angle 6 = (24x + 12)^\circ$, $x = 5$

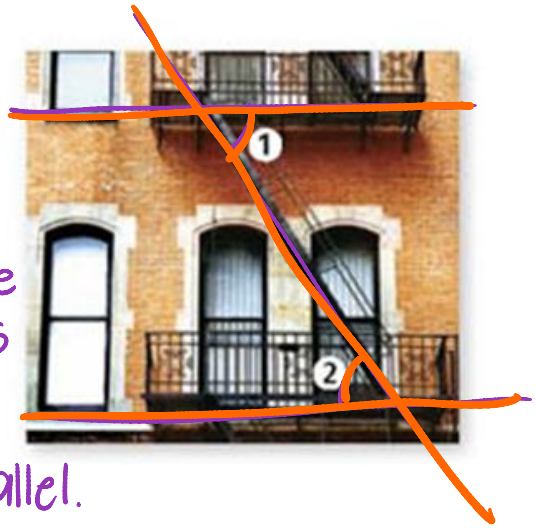
$\boxed{\measuredangle 8}$
$17(6)+37$
$102+37$
139°

$\boxed{\measuredangle 7}$
$9(6)-13$
$54-13$
41°

$\measuredangle 8 + \measuredangle 7 \overset{?}{=} 180^\circ$
$\underbrace{139+41}_{180^\circ}$

If S.S. int. $\measuredangle$s are supplementary, then the lines are $\parallel$.

11. **Architecture** In the fire escape, $m\angle 1 = (17x + 9)^\circ$, $m\angle 2 = (14x + 18)^\circ$, and $x = 3$. Show that the two landings are parallel.



$\boxed{\measuredangle 1}$
$17(3)+9$
$51+9$
60°

$\boxed{\measuredangle 2}$
$14(3)+18$
$42+18$
60°

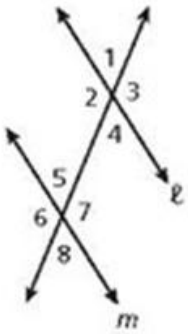
$\measuredangle 1 \cong \measuredangle 2$

If alt. int. $\measuredangle$s are $\cong$, then the lines are $\parallel$.

Landings are parallel.

PRACTICE AND PROBLEM SOLVING

Use the Converse of the Corresponding Angles Postulate and the given information to show that $\ell \parallel m$.



12. $\angle 3 \cong 7$

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

14. $m\angle 2 = (8x + 4)°$, $m\angle 6 = (11x - 41)°$, $x = 15$ → corr. ∡s

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

$\boxed{\measuredangle 2}$

$8(15)+4$

$120+4$

$124°$

$\boxed{\measuredangle 6}$

$11(15)-41$

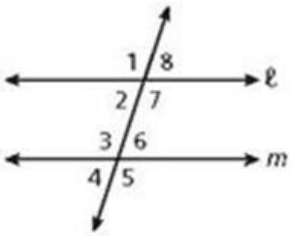
$165-41$

$124°$

$\measuredangle 2 \cong \measuredangle 6$

If corr. ∡s are ≅, then the lines are ∥.

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



24. $\angle 8 \cong \angle 6$

25. $\angle 8 \cong \angle 4$

26. $\angle 2 \cong \angle 6$

27. $\angle 7 \cong \angle 5$

28. $\angle 3 \cong \angle 7$

29. $m\angle 2 + m\angle 3 = 180°$

24) If corr ∡s ≅ → ∥ lines

25) If. alt. ext. ∡s ≅ → ∥ lines

26) If alt. int. ∡s ≅ → ∥ lines

28) If alt. int. ∡s ≅ → ∥ lines