Geo Ch 6 Review (continued)

5. $m\angle 1 = 37°$ If 2 ∥, alternate interior ∠'s ≅

$m\angle 2 + 37 = 63°$
$-37 \quad -37$
$m\angle 2 = 26°$

(63° is an exterior ∠ of △)

$m\angle 3 = 26°$ If 2 ∥, alternate interior ∠'s ≅

6. $m\angle 1 = 38°$ If 2 ∥, alternate interior ∠'s ≅

$m\angle 3 = 99°$ Opposite ∠'s of ▱ ≅

$m\angle 2 + 99 + 38 = 180$
$m\angle 2 + 137 = 180$
$-137 \quad -137$
$m\angle 2 = 43°$

7. $m\angle 2 = 79°$ Opposite ∠'s of ▱ are ≅

$m\angle 1 + 79 = 180$
$-79 \quad -79$
$m\angle 1 = 101°$

$m\angle 2 = 101°$ opposite ∠'s of ▱ ≅

8. Yes; If a quadrilateral has 2 pairs of opposite ∠'s ≅, then the quad is a ▱.

9. Yes; If a quadrilateral has 2 pairs of opposite sides ≅, then the quad is a ▱.

10. Not enough info to determine if it's a ▱... vertical ∠'s do not prove ∥

11. a) Yes; If a quad has diagonals that bisect each other, then the quad is a ▱

11 b) $4x + 2x + 6 = 180$

$6x + 6 = 180$
$-6 \quad -6$
$6x = 174$
$\frac{6x}{6} = \frac{174}{6}$
$x = 29$

$3y - 20 + 4y + 4 = 180$
$7y - 16 = 180$
$+16 \quad +16$
$7y = 196$
$\frac{7y}{7} = \frac{196}{7}$
$y = 28$

(29, 28)

12. $3x = 3y - 3 \ (\div 3)$

$\boxed{\begin{array}{c} 4x - 2 = 3y - 1 \\ x = y - 1 \end{array}}$

$4(y-1) - 2 = 3y - 1$
$4y - 4 - 2 = 3y - 1$
$4y - 6 = 3y - 1$
$-3y \quad -3y$
$y - 6 = -1$
$+6 \quad +6$
$y = 5$

$x = 5 - 1 = 4$ (4, 5)

13. $m\angle 1 + 56 = 180$
$-56 \quad -56$
$m\angle 1 = 124°$

$2(m\angle 2) + 124 = 180$
$-124 \quad -124$
$\frac{2(m\angle 2)}{2} = \frac{56}{2}$
$m\angle 2 = 28°$

$m\angle 3 + 28 = 90$
$-28 \quad -28$
$m\angle 3 = 62°$

14. $m\angle 1 = 60°$ Each diagonal of a RH bisects 2 ∠'s

$m\angle 2 = 90°$ Diagonals of RH are ⊥

$m\angle 3 + 60 = 90$
$-60 \quad -60$
$m\angle 3 = 30°$

15a) $m\angle 1 = 90°$ Diagonals of a K are ⊥

$m\angle 2 + 65 = 90$
$-65 \quad -65$

$m\angle 2 = 25°$