Geometry Section 6-3

Selected Answers

4. yes, it is a parallelogram b/c each pair of opp $\angle$s is $\cong$

6. $x = 41$; $y = 16$

10. yes; the diagonals bisect each other

12. no; none of the tests for parallelograms is fulfilled

14. no; none of the tests for Parallelograms

22. $x = 1, y = 2$

Set-up

$4 = y + 2x$

$3y + 2x = 5y - 2x$

Systems of equations!

$y = 4 - 2x$ Substitute

$3(4-2x) + 2x = 5(4-2x) - 2x$

$12 - 6x + 2x = 20 - 10x - 2x$

$12 - 4x = 20 - 12x$

$8x = 8$

$\boxed{x = 1}$

$y = 4 - 2x$

$y = 4 - 2(1)$

$y = 4 - 2$

$\boxed{y = 2}$

24) $x = 34$, $y = 44$

Setup $x - 12 = \frac{1}{2}y$

$3y - 4 = 4x - 8$

System of equations ▷

$x - 12 = \frac{1}{2}y$ ← easier to clear fractions

$2(x - 12) = y$

$2x - 24 = y$

Substitute

$3y - 4 = 4x - 8$

$3(2x - 24) - 4 = 4x - 8$

$6x - 72 - 4 = 4x - 8$

$6x - 76 = 4x - 8$

$2x = 68$

$\boxed{x = 34}$

$y = 2x - 24$

$y = 2(34) - 24$

$y = 68 - 24$

$\boxed{y = 44}$

25) set ups. $4y = \frac{2}{3}x$

$x = 3y + 4$

Substitute

$4y = \frac{2}{3}(3y + 4)$

$3(4y) = 2(3y + 4)$

$12y = 6y + 8$

$6y = 8$

$y = \frac{8}{6}$

$y = \frac{4}{3}$

$\boxed{y = 1\frac{1}{3}}$

$x = 3y + 4$

$x = 3\left(\frac{4}{3}\right) + 4$

$x = 4 + 4$

$\boxed{x = 8}$