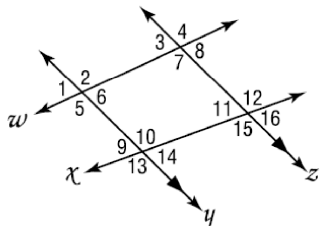## Chapter 3 Test

Multiple Choice
Identify the choice that best completes the statement or answers the question.

For questions 1 through 4, use the figure.

1. Angles 1 and 9 are

   _____.
   a. Vertical angles
   b. Corresponding Angles
   c. Consecutive Interior Angles
   d. Alternate Interior Angles

2. Angles 6 and 10 are

   _____.
   a. Vertical angles
   b. Corresponding Angles
   c. Consecutive Interior Angles
   d. Alternate Interior Angles

3. If lines *y* and *z* are parallel, which of the
   following angles are supplementary?
   a. $\angle 14$ and $\angle 11$
   b. $\angle 14$ and $\angle 15$
   c. $\angle 13$ and $\angle 15$
   d. $\angle 9$ and $\angle 16$

4. If lines *y* and *z* are parallel, and $\angle 1 = 60$, what is
   the measure of $\angle 3$?
   a. 60
   b. 120
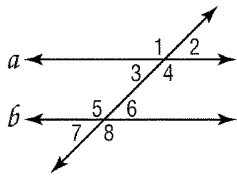   c. 180
   d. Impossible to determine

5. What is the slope of the line x = -3
   a. -2
   b. 0
   c. $\frac{1}{2}$
   d. undefined

6. What is the slope of a line that is perpendicular
   to the graph of ? 3x -2y = 6
   a. $\frac{3}{2}$
   b. $-\frac{2}{3}$
   c. $\frac{2}{3}$
   d. $-\frac{3}{2}$

Refer to the figure below.
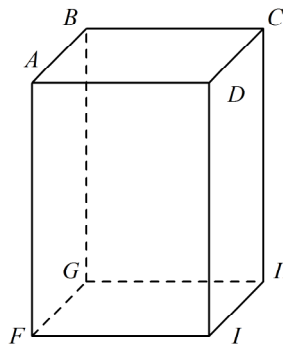
7. Name all segments skew to $\overline{BC}$.
   a. $\overline{FI}, \overline{AD}, \overline{FA}, \overline{DI}$
   b. $\overline{FG}, \overline{GH}, \overline{HI}, \overline{FI}$
   c. $\overline{CD}, \overline{AB}, \overline{BG}, \overline{CH}$
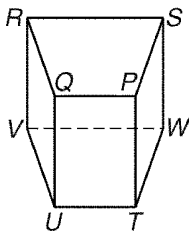   d. $\overline{GF}, \overline{HI}, \overline{DI}, \overline{AF}$

Refer to the figure below.

8. ∠3 and ∠7
    a.   alternate exterior
    b.   alternate interior
    c.   consecutive interior
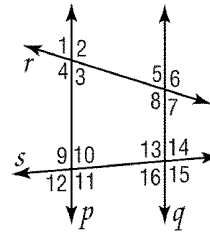   d.   corresponding

9. What is the slope of a line parallel to the line
    containing (−6, 1) and (3, −2)?
    a.   −3
    b. $-\dfrac{1}{3}$
    c. $\dfrac{1}{3}$
    d.   3

Refer to the figure below.

10. Which segment is skew to $\overline{RV}$?
    a. $\overline{RS}$
    b. $\overline{RQ}$
   c. $\overline{SW}$
    d. $\overline{SP}$

**For questions 12 - 13, refer to the figure below.
Identify the special name for each angle.**

11. ∠3 and ∠10
    a.   alternate exterior
    b.   alternate interior
    c.   consecutive interior
    d.   corresponding

12. If ∠12 ≅ ∠14, which postulate or theorem justifies
    that $p \parallel q$?
    a.   Corresponding Angles Postulate
    b.   Consecutive Interior Angles Theorem
    c.   Alternate Exterior Angles Theorem
    d.   Alternate Interior Angles Theorem

13. Which lines, if any, can you conclude are parallel
    given that $m\angle 1 + m\angle 2 = 180$? Justify your
    conclusion with a theorem or postulate.
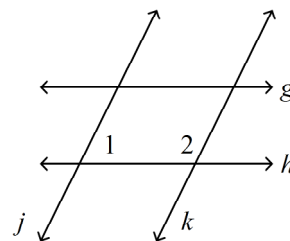
    a. $j \parallel k$, by the Converse of the Same-Side
         Interior Angles Theorem
    b. $j \parallel k$, by the Converse of the Alternate
         Interior Angles Theorem
    c. $g \parallel h$, by the Converse of the Alternate
         Interior Angles Theorem
    d. $g \parallel h$, by the Converse of the Same-Side
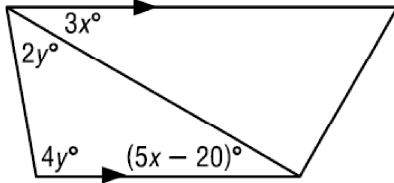   Interior Angles Theorem

14. Which is an equation of the line with slope 2 that contains (3, 1)?
    a. $y - 1 = 2(x - 3)$
    b. $y + 1 = 2(x + 3)$
    c. $y - 3 = 2(x - 1)$
    d. $y - 3 = (x - 2)$

Write an equation in point-slope form of the line having the given slope that contains the given point.

15. $m = 5, (4, 3)$
    a. $y = 5x - 1$
    b. $y - 5 = 3(x - 4)$
    c. $y - 4 = 5(x - 3)$
    d. $y - 3 = 5(x - 4)$

Short Answer

16. Solve for x and y in the figure.

18. Determine whether $\overleftrightarrow{MN}$ and $\overleftrightarrow{RS}$ are parallel, perpendicular, or neither. Justify your answer.
    $M(-2, 2), N(1, -3), R(-2, 1), S(3, 4)$

    .

19. A local community center offers self-defense classes for teens. A $25 enrollment fee covers supplies and materials and open classes cost $10 each. Write an equation to represent the total cost x self-defense classes at the community center.

    .

17. Write an equation in point-slope form for the line that has slope of –1 and passes through (1, –3).

    .

20. Determine the distance between the two lines.
    $y = 2x + 1$

    $y = 2x - 4$

    .

21. Given the following information, determine which lines, if any, are parallel. State the postulate or theorem that justifies your answer.

    a. $\angle QSR \cong \angle SUT$
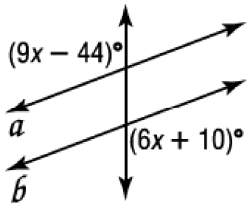
    b. $\angle 1 \cong \angle 2$

    c. $m\angle RTU + m\angle TUS = 180$

    Write an equation in slope-intercept form of the line having the given slope and y-intercept.
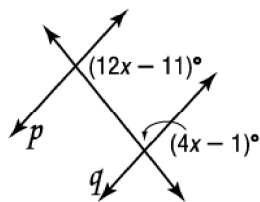
22. $m\!:-\dfrac{4}{5}, \left(0, -3\right)$

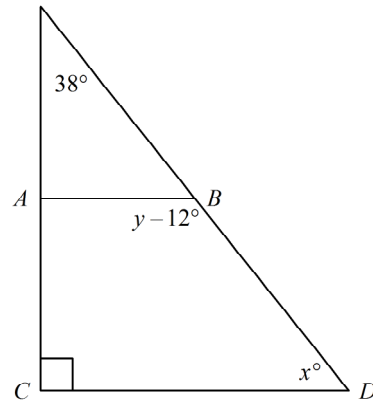23. Find x so that $a \parallel b$ and $p \parallel q$.

    a.

    $(9x - 44)^\circ$

    a

    $(6x + 10)^\circ$

    b

    b.

    $(12x - 11)^\circ$

    p

    $(4x - 1)^\circ$

    q

24. In the figure, $\overline{AB} \parallel \overline{CD}$. Find x and y.

    38°

    A B

    $y - 12^\circ$

    C x° D

25. In the figure, $p \parallel q$. Find $m\angle 1$.

    125°

    q 119° S

    1

    p

    t