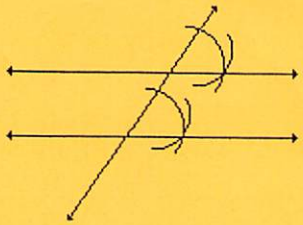
Geometry Review Sheet #3
Due Date: **December 12, 2011**

Name Key

1.



Which statement is illustrated in the construction?

(1) Through a point not on a given line, exactly one line can be drawn perpendicular to the given line.

(2) If two lines cut by a transversal form congruent alternate interior angles, then the two lines are parallel.

(3) If two lines cut by a transversal form congruent corresponding angles, then the two lines are parallel.

(4) If two lines cut by a transversal form same side interior angles that are supplementary, then the two lines are parallel.

2. What is the supplement of an angle that measures $3x°$?

(1) $90° - 3x°$

(2) $3x° - 90°$

(3) $3x° - 180°$

(4) $180° - 3x°$

3. Which of the lines whose equations are given below is perpendicular to $y = 4x + 7$?

(1) $8x + 2y = 16$

(2) $16x - 4y = -10$

(3) $2x - 8y = 7$

(4) $6x + 24y = 18$

4. What is true about the statement "If two angles are right angles, the angles have equal measure" and its converse "If two angles have equal measure then the two angles are right angles"?

(1) The statement is true but its converse is false.

(2) The statement is false but its converse is true.

(3) Both the statement and its converse are false.

(4) Both the statement and its converse are true.

5. Let p represent "$x > 5$" and let q represent "x is a multiple of 3." If $x = 12$, which statement is *false*?

(1) $p \vee q$

(2) $\sim q \wedge p$

(3) $p \rightarrow q$

(4) $p \leftrightarrow q$

6. If two angles are supplementary and one angle is twice as large and the other, find the number of degrees in the measure of the *smaller* angle.

(1) 30

(2) 90

(3) 60

(4) 120

7. Two lines are represented by the equations $-\frac{1}{2}y = 6x + 10$ and $y = mx$. For which value of m will the lines be parallel?

(1) -12

(2) -3

(3) 3

(4) 12

Short Answer

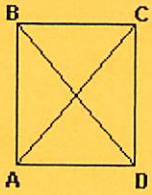
Please show all work on a separate sheet of paper and/or graph paper.

8. If $(k, 4)$ is a point on the graph of the equation $4x + 2y = 4$, what is the value of k?

9. Write the equation for the perpendicular bisector of the line segment whose endpoints are (4, –3) and (8,3)?

10. Under which transformation can the image be a different size than the original figure?

11. In the accompanying diagram of rectangle $ABCD$, $m\angle BAC = 3x + 4$ and $m\angle ACD = x + 28$. What is $m\angle CAD$?

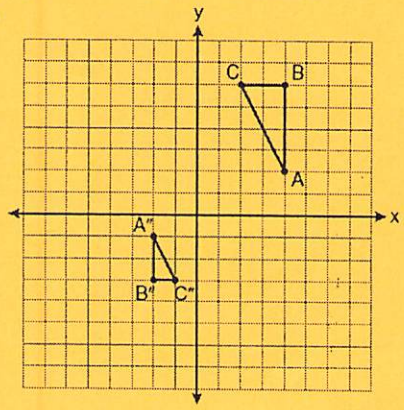


12. Point P is on line m. What is the total number of planes that are perpendicular to line m and pass through point P?

13. The coordinates of ΔABC are $A(1,1)$, $B(2,3)$, and $C(3,1)$. If $\Delta A'B'C'$ is the result of the transformation $D_2 \circ r_{y\text{-axis}}$, then $\Delta A'B'C'$ is

14. The coordinates of point R are (-3,2) and the coordinates of point T are (4,1). What is the length of $\overline{RT}$?

15. After a composition of transformations, the coordinates $A(4,2)$, $B(4,6)$, and $C(2,6)$ become $A''(-2,-1)$, $B''(-2,-3)$, and $C''(-1,-3)$, as shown on the set of axes below.



Which composition of transformations was used?

16. Solve the following system of equations algebraically or graphically:

$y = x^2 + 2x - 4$

$y - 5 = 2x$

RS #3

8 $4k + 8 = 4$

$-8 \quad -8$

$4k = -4$

$\boxed{k = -1}$

9. $M = (6, 0)$

$m = \frac{-3-3}{4-8} = \frac{-6}{-4} = \frac{3}{2} \qquad m_{\perp} = -\frac{2}{3}$

$0 = -\frac{2}{3}(6) + b$

$0 = -4 + b$

$b = 4$

$\boxed{y = -\frac{2}{3}x + 4}$

10 $\boxed{\text{Dilation}}$

11. $3x + 4 = x + 28$

$2x = 24$

$x = 12$

$m\angle CAD + m\angle BAC = 90$

$m\angle CAD + 3(12) + 4 = 90$

$\boxed{m\angle CAD = 50^\circ}$

12. $\boxed{1}$

13 $A(1,1) \xrightarrow{r_{y\text{-axis}}} (-1,1) \xrightarrow{D_2} A'(-2,2)$

$B(2,3) \rightarrow (-2,3) \rightarrow B'(-4,6)$

$C(3,1) \rightarrow (-3,1) \rightarrow C'(-6,2)$

14 $\overline{RT} = \sqrt{(4+3)^2 + (2-1)^2}$

$= \sqrt{7^2 + 1^2}$

$= \sqrt{50}$

$= 5\sqrt{2} \approx 7.07$

15 $D_{\frac{1}{2}} \circ R_{180}$ or $R_{180} \circ D_{\frac{1}{2}}$

16 $x^2 + 2x - 4 = 2x + 5$

$x^2 - 9 = 0$

$(x+3)(x-3) = 0$

$x = -3 \quad x = 3$

$y = -1 \quad y = 11$

$(-3,-1) \quad (3,11)$