Geometry Review Sheet #4   Name ___Key___
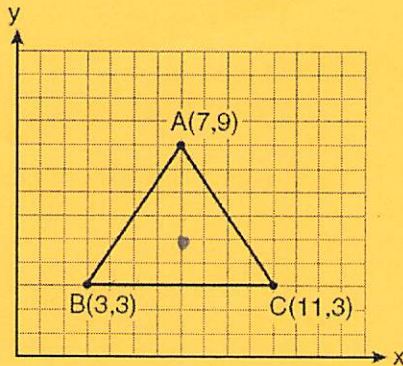
Date Due: **December 22, 2011**

1. The vertices of the triangle in the diagram below are $A(7,9)$, $B(3,3)$, and $C(11,3)$.

What are the coordinates of the centroid of $\triangle ABC$?

(1) (5,6)   (3) (7,5)

(2) (7,3)   (4) (9,6)

2. "If Mary and Tom are classmates, then they go to the same school."

Which statement below is logically equivalent?

(1) If Mary and Tom do not go to the same school, then they are not classmates.

(2) If Mary and Tom are not classmates, then they do not go to the same school.

(3) If Mary and Tom go to the same school, then they are classmates.

(4) If Mary and Tom go to the same school, then they are not classmates.

3. If point X and line Y are on plane B, X and Y are

(1) coplanar   (3) skew

(2) collinear   (4) parallel

4. Which statement is *false* about the line whose equation is $y = -2x - 5$?

(1) Its slope is -2.

(2) It is parallel to the line whose equation is $y = 2x + 5$.

(3) Its y-intercept is -5.

(4) It is perpendicular to the line whose equation is $y = \dfrac{1}{2}x - 5$.

5. In right triangle ABC, angle C is the right angle. If the coordinates of A are $(-1, 1)$ and the coordinates of B are $(4, -2)$, the coordinates of C may be

(1) (-1, -2)   (3) (1, 2)

(2) (-1, 2)   (4) (1, -2)

6.
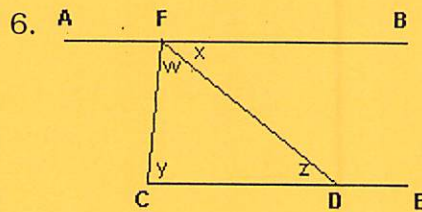
In the diagram: $\overline{AFB} \parallel \overline{CDE}$ and $\overline{FD}$ bisects $\angle CFB$. Which statement is true?

(1) $\angle w \cong \angle y$ (3) $\angle w \cong \angle z$

(2) $\angle y \cong \angle z$ (4) $\angle x \cong \angle y$

Short Answer

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

7. Which is an equation of the line that passes through the point (-2, 4) and is parallel to the line $y = 3$?

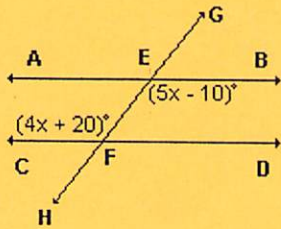8. The endpoints of $\overline{PQ}$ are $P(-3, 1)$ and $Q(4, 25)$. Find the length of $\overline{PQ}$.

9. $\triangle GHS$ has vertices $G(3,1)$, $H(5,3)$, and $S(1,4)$. Graph and state the coordinates of $\triangle G''H''S''$, the image of $\triangle GHS$ after the transformation $T_{-3,1} \circ D_2$.

10. Point Z is the centroid of triangle ABC, $CA = 20$, $AD = 12$ and $BE = 9$. What is the perimeter of triangle AZE?
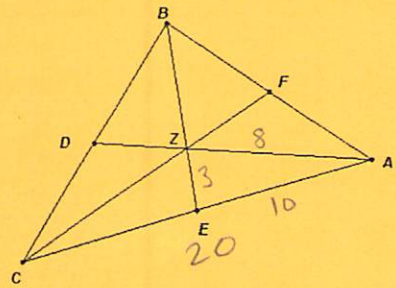
11.

In the diagram, parallel lines $\overleftrightarrow{AB}$ and $\overleftrightarrow{CD}$ are intersected by $\overleftrightarrow{GH}$ at E and F, respectively. If $m\angle BEF = 5x - 10$ and $m\angle CFE = 4x + 20$, find $m\angle EFD$.

12. Which is the converse of the statement "If today is Presidents' Day, then there is no school"?

13. Given the points $A(2, 3)$, $B(6,11)$ and $C(8, 5)$ are the vertices of $\triangle ABC$.

  A. Prove that $\triangle ABC$ is isosceles. (Round to the nearest tenth.)

  B. Point D is the midpoint of the base. Prove that $\overline{CD} \perp \overline{AB}$

14. The graphs of the equations $y = x^2 + 4x - 1$ and $y + 3 = x$ are drawn on the same set of axes. At which point(s) do the graphs intersect?

7. $\boxed{y = 4}$

8. $d = \sqrt{(-3-4)^2 + (1-25)^2}$

   $d = \sqrt{(-7)^2 + (-24)^2}$

   $\boxed{d = 25}$

9. $G\ (3,1) \rightarrow (6,2) \rightarrow G'\ (3,3)$
   $H\ (5,3) \rightarrow (10,6) \rightarrow H'\ (7,7)$
   $S\ (1,4) \rightarrow (2,8) \rightarrow S'\ (-1,9)$

10. 21

11. $4x + 20 = 5x - 10$

    $30 = x$

    $m\angle EFC = 140°$

    $m\angle EFD = 40°$

12. If there is no school then today is
    Presidents Day

13. a) $d_{AC} = \sqrt{(8-2)^2 + (5-3)^2}$ $d_{BC} = \sqrt{(8-6)^2 + (11-5)^2}$

    $= \sqrt{6^2 + 2^2}$ $= \sqrt{2^2 + 6^2}$

    $= \sqrt{40}$ $AC \cong BC$ $= \sqrt{40}$

    $\therefore \triangle ABC$ is isosceles

    b) $D'\ \langle 4,7 \rangle$

    $m_{AB} = \dfrac{8}{4} = 2$ $m_{CD} = \dfrac{7-5}{4-8} = -\dfrac{2}{4} = -\dfrac{1}{2}$

    $\therefore \overline{CD} \perp \overline{AB}$

14 $x - 3 = x^2 + 4x - 1$
    $x^2 + 3x + 2 = 0$
    $(x + 2)(x + 1) = 0$

$x + 2 = 0$ | $x + 1 = 0$
$x = -2$ | $x = -1$
$y = -5$ | $y = -4$

$(-2, -5)$ $(-1, -4)$