Chapter 3 Geometry Test Review

1.) Use the figure to answer the following.

   a.) Name all planes that are parallel to plane ABC.

   b.) Name all segments that intersect $\overline{AG}$.

   c.) Name all segments that are parallel to $\overline{CE}$.

   d.) Name all segments that are skew to $\overline{AD}$.

2.) Identify each pair of angles from the following descriptions.

   a.) Name all pairs of vertical angles.

   b.) Name each linear pair.

   c.) Name all pairs of alternate interior angles.

   d.) Name all pairs of alternate exterior angles.

   e.) Name all pairs of consecutive interior angles.

   f.) Name all pairs of corresponding angles.

3.) Given $m\angle3 = 67^\circ$, find the following angle measures.

   a.) $\angle1$ _______  b.) $\angle2$ _______

   c.) $\angle3$ _______  d.) $\angle4$ _______

   e.) $\angle5$ _______  f.) $\angle6$ _______

   g.) $\angle7$ _______  h.) $\angle8$ _______
4.) Given $m\angle 7 = 107^\circ$ and $m\angle 10 = 86^\circ$, find the following angle measures.

   a.) $\angle 1$ ________
   b.) $\angle 2$ ________
   c.) $\angle 3$ ________
   d.) $\angle 4$ ________
   e.) $\angle 5$ ________
   f.) $\angle 6$ ________
   g.) $\angle 7$ ________
   h.) $\angle 8$ ________
   i.) $\angle 9$ ________
   j.) $\angle 10$ ________
   k.) $\angle 11$ ________
   l.) $\angle 12$ ________
   m.) $\angle 13$ ________
   n.) $\angle 14$ ________
   o.) $\angle 15$ ________
   p.) $\angle 16$ ________

5.) Find $m\angle 1$ in the following figure.

6.) Find the value of $x$.
7.) Find the value of $y$.

8.) Find the values of $w$ and $z$.

9.) Find $h$ so that the lines are parallel.

10.) Find $g$ so that the lines are parallel.

Determine the slope of the line that contains the given points.

11.) $A(0, 2)$ and $B(7, 3)$

12.) $W(3, 2)$ and $X(4, -3)$
Determine whether \( \overrightarrow{PQ} \) and \( \overrightarrow{UV} \) are parallel, perpendicular, or neither.

13.) \( P(-3, -2), Q(9, 1), U(3, 6), V(5, -2) \)  
14.) \( P(5, -4), Q(10, 0), U(9, -8), V(5, -13) \)

Write an equation in slope-intercept form for each line.

15.) \( l \)

16.) parallel to \( l \), contains \((-1, 6)\)

17.) perpendicular to \( l \), contains \((4, -5)\)

Write an equation in both point-slope form and slope-intercept form for the line that satisfies the given conditions.

18.) slope = -3, contains \((-2, 6)\)

Make a conjecture about the next item in each sequence.

19.) 5, 15, 25, 35, ________

20.) \( \frac{1}{2}, \frac{3}{4}, 1, 5/4, \) ________

21.) T, W, R, F, ________
Draw a diagram and make a conjecture in the following situations:

22.) $\angle ABC$ and $\angle DBE$ are vertical angles.

   Diagram

   Conjecture:

23.) $MN + NO = MO$

   Diagram

   Conjecture:

24.) Jeff's restaurant sells hamburgers. The amount charged for a hamburger ($h$) is based on the cost for a plain hamburger plus an additional charge for each topping ($t$) as shown in the equation below.

   $h = 0.60t + 5$

   What does the number 0.60 represent in the equation?

   a. the number of toppings
   b. the cost of a plain hamburger
   c. the additional cost for each topping
   d. the cost of a hamburger with 1 topping

25.) A graph of a linear equation is shown below. Which equation describes the graph?

   a. $y = 0.5x - 1.5$
   b. $y = 0.5x + 3$
   c. $y = 2x - 1.5$
   d. $y = 2x + 3$
26.) Line p contains the points (9, 7) and (13, 5). Which equation represents a line perpendicular to line p?

a. \(-2x + y = -11\)  
b. \(-x - 2y = -2\)  
c. \(-x + 2y = 5\)  
d. \(2x + y = 31\)

27.) On a city map, WHHS is located at position (5, -4) and the mall is located at (10, 6).
What is the slope of the line between WHHS and the mall? ________
What is the distance between WHHS and the mall according to this map? ________
If you were meeting a friend halfway between WHHS and the mall, what would be the coordinate of the location where you will meet? ________
Graph the location of WHHS and the mall on the coordinate plane below. Show the meeting place on the map as point M, show WHHS as point W, and the mall as point S.

(some formulas you may need:
\[d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}\]
\[m = \frac{y_2 - y_1}{x_2 - x_1}\]
\[M = \left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2}\right)\]

What is the distance between WHHS (W) and your meeting place (M)? __________
If you lived perpendicular to the line made between W and S from M (the meeting place), what would be the equation of the line to your house? ________________________