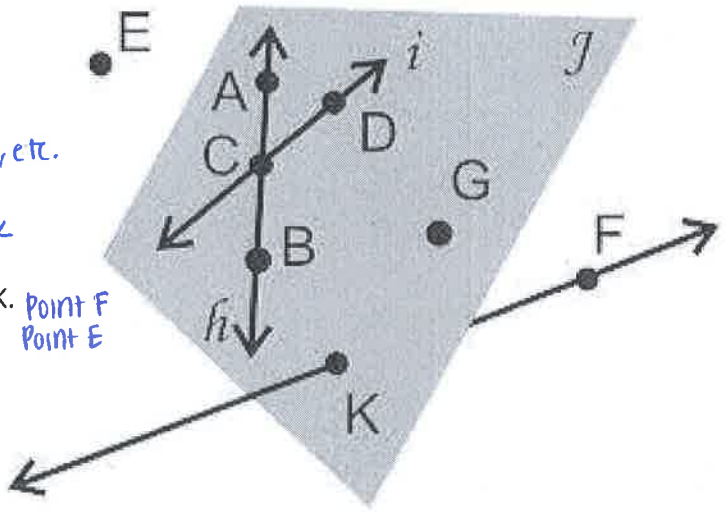
Geometry H
Quiz Review 1.1 – 1.3

Name: Key
Date: 9/13/16 Period: _____

Section 1.1: Identify Points, Lines, and Planes

- ✓ Review pages 2 – 5 of your textbook.
- ✓ You should be able to name points, lines, planes, segments, rays, and opposite rays.
- ✓ You should be able to identify intersections of lines and planes.

1. Using the diagram below, name an example of:
   a) three collinear points A, C, B
   b) two other names for $\overleftrightarrow{CD}$. $\overleftrightarrow{DC}$, line i
   c) another name for plane J. Plane ACD, DCG, etc.
   d) the intersection of plane J and $\overleftrightarrow{KF}$. Point K
   e) a point that is noncoplanar with B, G, and K. Point F, Point E
   f) a pair of opposite rays. $\overrightarrow{CA}$, $\overrightarrow{CB}$
   g) an angle. ∠DCB, ∠BCD, ∠ACD, ∠DCA
   h) another name for $\overrightarrow{BC}$. $\overrightarrow{BA}$



2. $\overrightarrow{PR}$ is represented by which sketch?

a)

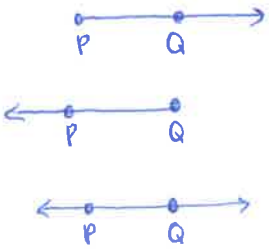

b)


c)


d)


3. Draw four points, *A, B, C,* and *D*, on a line so that $\overrightarrow{AC}$ and $\overrightarrow{AB}$ are opposite rays and $\overrightarrow{AC}$ and $\overrightarrow{AD}$ are the same ray.

4. What do $\overrightarrow{PQ}$ and $\overrightarrow{QP}$ have in common? (HINT: Draw a picture!)



They are on the same line; both have all points in common

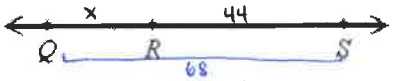
Section 1.2: Use Segments and Congruence

- ✓ Review pages 9 – 11 of your textbook.
- ✓ You should be able to find length of a segment using the Ruler Postulate and the Segment Addition Postulate.
- ✓ Compare segments to identify congruent segments.

5. The notation for the length of the segment between P and Q is _____.

   a) $\overrightarrow{PQ}$ b) $\overline{PQ}$ c) $\overrightarrow{QP}$ d) PQ

6. In the diagram below, R is between Q and S. If RS = 44 and QS = 68, find QR.

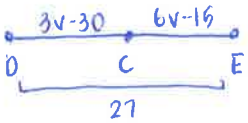


   a) 14 b) 44 c) 112 d) 24

$x + 44 = 68$
$-44 \quad -44$
$x = 24$

7. Let C be between D and E. Use the Segment Addition Postulate to solve for v. (It may be helpful to draw a diagram ☺)

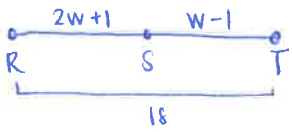
   $DC = 3v - 30$
   $CE = 6v - 15$
   $DE = 27$



$3v - 30 + 6v - 15 = 27$
$9v - 45 = 27$
$9v = 72$
$v = 8$

   a) v = 3 b) v = 11 c) v = -5 d) v = 8

8. *R*, *S* and *T* are collinear. *S* is between *R* and *T*. RS = 2w + 1, ST = w -1, and RT = 18. Find the length of $\overline{RS}$. (It may be helpful to draw a diagram ☺)

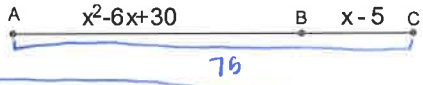


   a) 16 b) 5 c) 13 d) 6

$2w + 1 + w - 1 = 18$
$3w = 18$
$w = 6$

$RS = 2(6) + 1$
$RS = 13$

9. Given AC = 75 in the diagram below, find the values of *x*, *AB*, and *BC*.

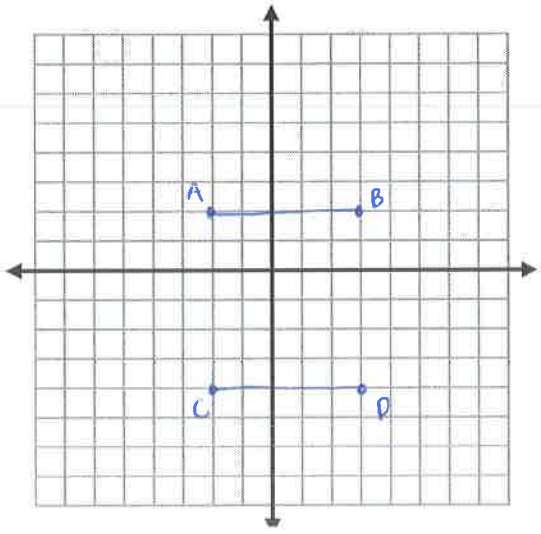


$x^2 - 6x + 30 + x - 5 = 75$
$x^2 - 5x + 25 = 75$
$x^2 - 5x - 50 = 0$
$(x - 10)(x + 5) = 0$

$x = 10$ $x = -5$
$BC = 10 - 5 = 5$
$BC = -5 - 5 = -10$ ✗ doesn't work

$BC = 10 - 5 = 5$
$AB = (10)^2 - 6(10) + 30 = 70$

10. Plot the following points in a coordinate plane: A(-2, 2), B(3, 2), C(-2, -4) and D(3, -4).



   a) Is $\overline{AB} \cong \overline{CD}$? Explain.

Yes, since AB = 5 and CD = 5, $\overline{AB} \cong \overline{CD}$ because they are the same length.

   b) Is there another pair of congruent segments? If so, name the segments and explain why they are congruent.

Yes, $\overline{AC} \cong \overline{BD}$ because they are both 6 units in length.

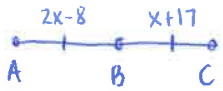
Section 1.3: Use Midpoint and Distance Formulas

- ✓ Review pages 15 – 18 of your textbook.
- ✓ YOU WILL NOT BE GIVEN THE FORMULAS ON THE QUIZ!!! MAKE SURE YOU STUDY THEM!!!
- ✓ You should be able to distance formula to find lengths of segments.
- ✓ You should be able to use the midpoint formula to find the midpoint of a segment in the coordinate plane, or identify a missing endpoint given the midpoint and one endpoint.
- ✓ You should be able to identify and use segment bisectors to solve problems.

11. T is the midpoint of $\overline{PQ}$. Which one of the following is ***not*** an appropriate statement?

a) $PT = TQ$ ✓ (b) $\overline{PT} = \overline{TQ}$ c) $\overline{PT} \cong \overline{TQ}$ ✓ d) $PT + TQ = PQ$ ✓

12. B is the midpoint of $\overline{AC}$. Find x, AB, BC, and AC if $AB = 2x - 8$ and $BC = x + 17$. (Draw a diagram ☺)



$2x - 8 = x + 17$

$x - 8 = 17$

$\boxed{x = 25}$

$AB = 2(25) - 8$

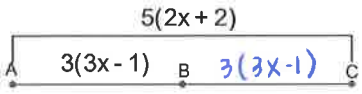
$\boxed{AB = 42}$

$\boxed{BC = 42}$

$AC = 42 + 42$

$\boxed{AC = 84}$

13. B is the midpoint of $\overline{AC}$. Find x, AB, BC, and AC.



$3(3x-1) + 3(3x-1) = 5(2x+2)$

$9x - 3 + 9x - 3 = 10x + 10$

$18x - 6 = 10x + 10$

$8x - 6 = 10$

$8x = 16 \Rightarrow \boxed{x = 2}$

$AB = 3(3(2)-1) = 3(6-1) = 3(5) = 15$

$BC = 15$

$AC = 5(2(2)+2) = 5(4+2) = 5(6) = 30$

14. Find the midpoint of the segment with endpoints (9, 8) and (3, 5). (x_1, y_1) (x_2, y_2)

a) (3, 3/2) b) (12, 13) (c) (6, 13/2) d) (1, -2)

$M = \left(\frac{9+3}{2}, \frac{8+5}{2}\right) = \left(\frac{12}{2}, \frac{13}{2}\right) = (6, 6.5)$

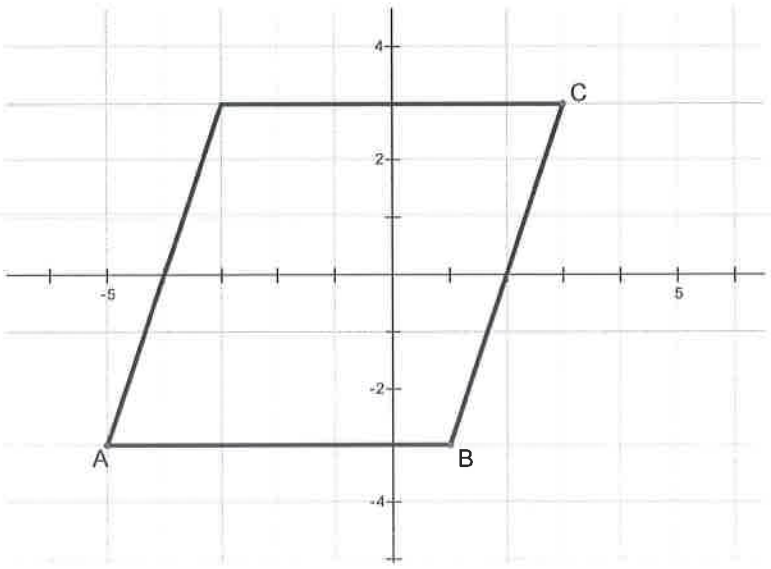
15. The diagonals of parallelogram $ABCD$ have a common midpoint. Which of the following is the midpoint of the diagonals of $ABCD$?

a) (4, 0)

(b) (-1, 0)

c) (4, 3)

d) (-1, 3)



$A(-5, -3)$ $C(3, 3)$

(x_1, y_1) (x_2, y_2)

$M = \left(\frac{-5+3}{2}, \frac{-3+3}{2}\right) = \left(\frac{-2}{2}, \frac{0}{2}\right) = (-1, 0)$

16. The midpoint of $\overline{JK}$ is M(-2, -2). One endpoint is J(4, 3). Find the coordinates of the other endpoint.

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

$-4 = 4+x \Rightarrow x = -8$ $\quad -4 = 3+y \Rightarrow y = -7$

$(-8, -7)$

17. Given points W(1, 3), X(7, 1), Y(5, 1) and Z(2, 4), find the length of $\overline{WY}$ and $\overline{XZ}$ in simplest radical form. Is $\overline{WY} \cong \overline{XZ}$? Explain.

$WY = \sqrt{(5-1)^2+(1-3)^2} = \sqrt{(4)^2+(-2)^2} = \sqrt{16+4} = \sqrt{20} = \sqrt{4}\sqrt{5} = 2\sqrt{5}$

$XZ = \sqrt{(2-7)^2+(4-1)^2} = \sqrt{(-5)^2+(3)^2} = \sqrt{25+9} = \sqrt{34}$

$\overline{WY} \ncong \overline{XZ}$ because they are not the same length

18. Determine the coordinates of the midpoint of $\overline{GH}$ and find GH in simplest radical form, given the points G(-6, -7) and H(3, 6).

$M = \left(\frac{-6+3}{2}, \frac{-7+6}{2}\right) = \left(-\frac{3}{2}, -\frac{1}{2}\right)$

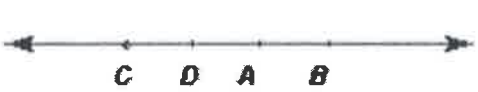
$GH = \sqrt{(3--6)^2+(6--7)^2} = \sqrt{(3+6)^2+(6+7)^2} = \sqrt{(9)^2+(13)^2} = \sqrt{81+169} = \sqrt{250} = \sqrt{25}\sqrt{10}$

$GH = 5\sqrt{10}$

19. The positions of two airplanes approaching an airport are plotted in a coordinate plane with the airport located at (0, 0). The locations of the planes are given by the coordinates (-3, 3) and (-5, 5). Each grid square is 1 mile wide. How far apart are the approaching planes? Round your answer to the nearest tenth of a mile.

distance between planes $= \sqrt{(-5--3)^2+(5-3)^2} = \sqrt{(-5+3)^2+(5-3)^2} = \sqrt{(-2)^2+(2)^2} = \sqrt{4+4} = \sqrt{8} \approx 2.8$ miles

ANSWER KEY:

1. a) A, B, C ✓ b) line i, $\overleftrightarrow{DC}$ ✓ c) Any combination of THREE of the following letters: A, B, C, D, G, K ✓
   d) K ✓ e) E or F ✓ f) $\overrightarrow{CA}$ and $\overrightarrow{CB}$ ✓ g) ∠ACD, ∠DCA, ∠DCB, ∠BCD ✓ h) $\overrightarrow{BA}$ ✓
2. c ✓
3. Sketches may vary. Sample sketch: 

✓
4. They have all of the points on $\overline{PQ}$ in common. ✓
5. d ✓ 6. d ✓ 7. d ✓ 8. c ✓ 9. x = 10, AB = 70, BC = 5 ✓
10. a) Yes, because each has a length of 5 units. ✓
    b) Yes. Sample answer: $\overline{AC} \cong \overline{BD}$ because each has a length of 6 units ✓
11. b ✓ 12. x = 25, AB = 42, BC = 42, and AC = 84 ✓ 13. x = 2, AB = 15, BC = 15, and AC = 30 ✓
14. c ✓ 15. b ✓ 16. (-8, -7) ✓
17. $WY = 2\sqrt{5}$, $XZ = \sqrt{34}$; No they are not congruent because they do not have the same length. ✓
18. $\left(-\frac{3}{2}, -\frac{1}{2}\right)$, $GH = 5\sqrt{10}$ ✓ 19. 2.8 miles ✓