Geometry Ch 2 HW Packet: Segments

Date	Day	Assignment
9/6/23 **9/7/23**	**Wednesday (A)** **Thursday (B)**	Notes: 2.1 Introduction to Line Segments **HW: 2.1 Worksheet**
9/8/23 **9/11/23**	**Friday (A)** **Monday (B)**	Notes: 2.2 Using Midpoints **HW: 2.2 Worksheet**
9/12/23 **9/13/23**	**Tuesday (A)** **Wednesday (B)**	Notes: 2.3 Pythagorean Theorem and Distance Formula **HW: 2.3 Worksheet**
9/14/23 **9/15/23**	**Thursday (A)** **Friday (B)**	Notes: 2.4 Planar Geometry **HW: 2.4 Worksheet**
9/18/23 **9/19/23**	**Monday (A)** **Tuesday (B)**	Notes: 2.5 Conditional Statements and Syllogisms **HW: 2.5 Worksheet**
9/20/23 **9/21/23**	**Wednesday (A)** **Thursday (B)**	Notes: 2.6 One- and Two-Step Proofs **HW: 2.6 Worksheet**
9/22/23 **9/25/23**	**Friday (A)** **Monday (B)**	Chapter 2 Review **HW: Chapter 2 Review**
9/26/23 **9/27/23**	**Tuesday (A)** **Wednesday (B)**	Flex Day
9/28/23 **9/29/23**	**Thursday (A)** **Friday (B)**	Chapter 2 Test **HW: No Homework**

HW Hints:

- Check your answers, and view solutions for your corrections at www.washoeschools.net/DRHSmath
- Check out our class YouTube channel: **https://www.youtube.com/channel/UCh9fLvgw9metmQuIb6vQ5Zw**
- Show all work and draw the diagrams for each problem.
- Students who complete every assignment this semester will get a 2% bonus.
- For extra practice, visit www.khanacademy.org
- Check out www.mathguy.us for extra help.

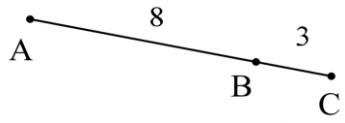
Geometry **Ch 2 HW Packet: Segments**

Geometry **Ch 2 HW Packet: Segments**

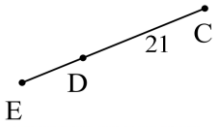
2.1 Worksheet **Name**_____

For #1 – 5, find the length of the requested segment.

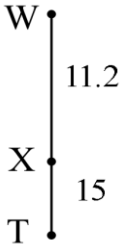
1) Find AC.



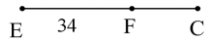
2) Find ED if EC = 30.



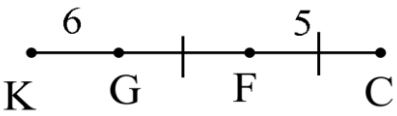
3) Find WT.



4) Find FC if EC = 70.

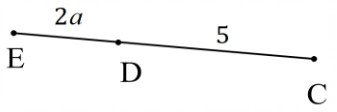


5) Find KC if $\overline{GF} \cong \overline{FC}$.

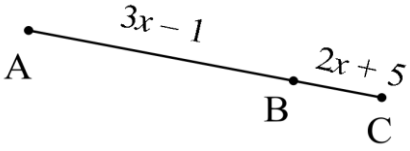


For #6 – 11, solve for the variable for each diagram.

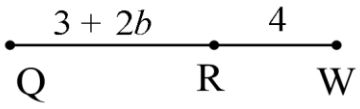
6) Find *a* if EC = 40.



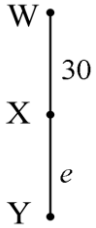
7) Find *x* if AC = 39.



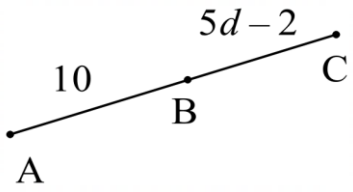
8) Find *b* if QW = $4b - 1$



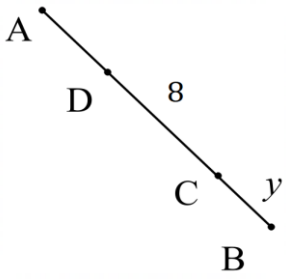
9) Find *e* if $\overline{WX} \cong \overline{XY}$.



10) Find *d* if $\overline{AB} \cong \overline{BC}$.



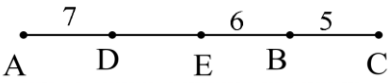
11) Find *y* if $\overline{AD} \cong \overline{BC}$ and $\overline{AB} = 30$.



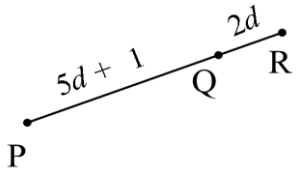
2.1 Wk continued on next page!

For #12 – 14, solve for the requested segment. Show your work.

12) Find AC if $\overline{DE} \cong \overline{BC}$.

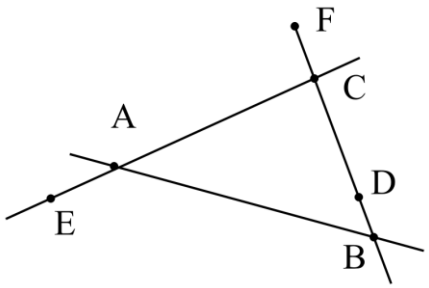


13) Find PQ if PR = $6d + 4$.



14) Given that M is between P and H, PM = $y + 3$, MH = $2y + 2$, and PH = 17, then find the length of PM. Hint: draw and label a diagram.

For #15 – 20, use the diagram.



15) Find the point of intersection for AB and BF.

16) Name a point that is collinear with E and C.

17) Are points B, A, and C collinear? Explain.

18) Name a point that is collinear with F, D, and B.

19) True or false? Any two points are collinear.

20) Name a point that is *not* collinear with points D and B.

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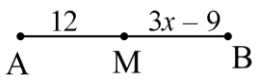
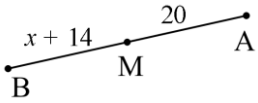
2.2 Worksheet **Name**_____

For #1 – 4, find the variable, given that M is the midpoint of AB.

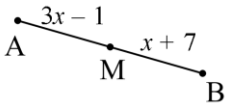
1)

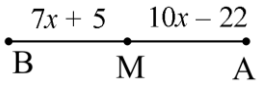


2)



3)





For # 5 – 10, find the midpoint of segment AB, with the given coordinates for the endpoints.

5) $A(2,7); B(6,21)$ 6) $A(5,1); B(0,11)$ 7) $A(-4,3); B(-1,0)$

8) $A(7,-3); B(7,15)$ 9) $A(10,-4); B(-3,-8)$ 10) $A(4.2,8); B(14,-29)$

For #11 – 15, find the missing endpoint of segment AB, given the midpoint M and one endpoint.

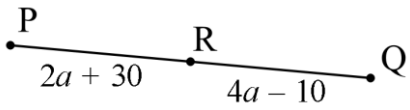
11) $A(2,3); M(4,10)$ 12) $B(7,1); M(3,15)$ 13) $M(2,2); B(-7,3)$

14) $A(24,15); M(0,18)$ 15) $M(-3,-2); B(-1,-9)$

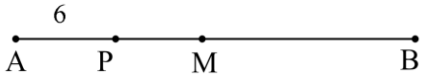
2.2 Wk Continued on the next page

2.2 Wk Continued…

16) In the diagram shown, find the length of PQ if R is the midpoint of PQ.



17) In the diagram shown, M is the midpoint of AB, and P is the midpoint of AM. Find the length of PB.



18) Factor: $5y^2 - 15y$

19) Factor: $b^2 - 4$

20) Multiply: $(x - 3)(2x + 1)$

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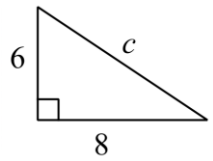
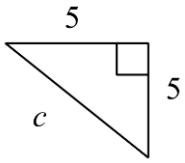
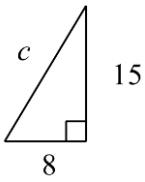
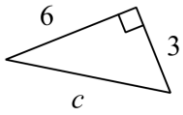
2.3 Worksheet **Name**_____

For #1 – 4, find the value of *c* for each right triangle. Simplify radical answers. No decimal answers!

1) 

2) 

3) 

4) 

For #5 – 10, find the length of the segment with the given endpoints. Write your answer as a simplified radical, if needed. You may use *either* the Pythagorean Theorem or the Distance Formula to do these problems.

5) $A(7,2); B\ (3,7)$ 6) $P(2,0); Q(6,4)$ 7) $R(-3,2); T(-5,8)$

8) $W(3,-5); X(-1,-2)$ 9) $M(11,15); N(12,11)$ 10) $E(-6,-10); F(-1,2)$

For #11 – 13, find the length of the segment with the given endpoints. Write your answer as a decimal rounded to one decimal place, if needed. You may use *either* the Pythagorean Theorem or the Distance Formula to do these problems.

11) $D(1,12); E(6,13)$ 12) $G(4,-7); H(-8,20)$ 13) $S(30,-2); Y(22,-12)$

2.3 Wk Continued on the next page

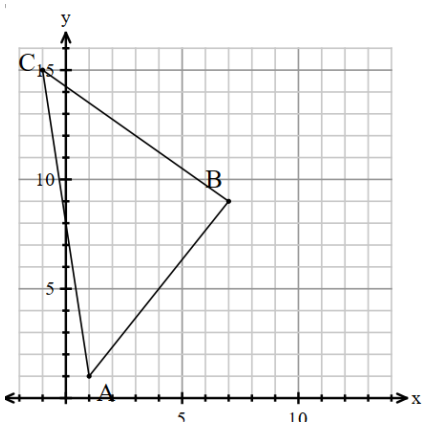
2.3 Wk Continued…

14) Which segment is longer, AB or PQ, with $A(-2,1); B(3,6); P(-10,7); Q(-13,13)$? Show your work!

For #15 – 18: Use the graph shown, with $A(1,1); B(7,9); C(-1,15)$. Round to one decimal place!

15) Find the length of AB.

16) Find the length of BC.

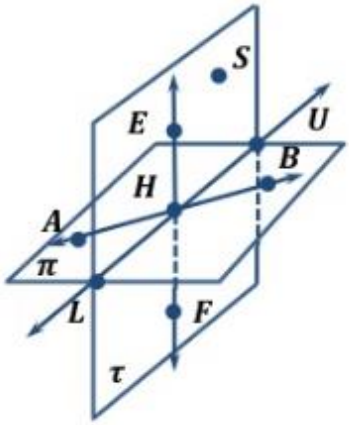


17) Find the length of AC.

18) Classify ΔABC as scalene (all sides are different), isosceles (2 sides are congruent), or equilateral (all three sides are the same).

2.4 Worksheet **Name**_____

For #1 – 5, use the diagram shown to the right to answer the questions.



1) What is the point of intersection for $\overleftrightarrow{AB}$ and $\overleftrightarrow{EF}$?

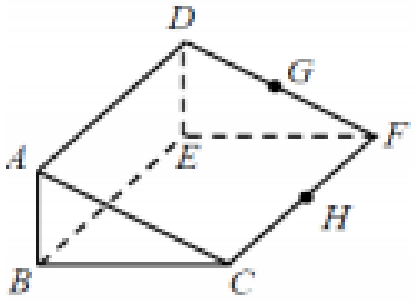
2) Name a point that is collinear with F and H.

3) What is the intersection of plane π and $\overleftrightarrow{EF}$?

4) Name two points that are coplanar with A, L, and B.

5) Name a point that is coplanar with points E, H and B.

For #6 – 10, use the diagram shown to the right to answer the questions.



6) What is the intersection of plane ABC and plane EFH?

7) Name a point that is collinear with F and C.

8) Name a point that is coplanar with A, D, and E.

9) What is the intersection of plane ADC and plane ABC?

10) Name a point that is coplanar with A, C, and F.

For #11 – 13, True or False? Explain if False.

11) If two lines do not intersect, then they are skew.

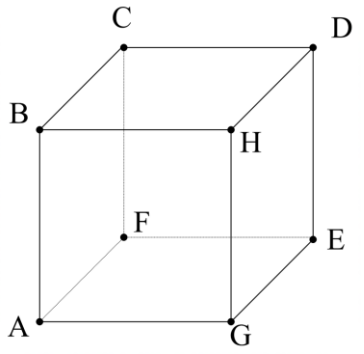
12) If two planes intersect, then they intersect in a line.

13) If two lines intersect at right angles, then they are perpendicular.

2.4 Wk Continued on the next page

2.4 Wk Continued…

For #14 – 19, describe each pair of lines as parallel, perpendicular, or skew. Assume all angles are right angles in the diagram shown.



14) DC and DE

15) BH and AG

16) AF and CD

17) BC and FE

18) HD and GE

19) AB and AF

20) Find the **midpoint** of AB, if $A(-3, 8)$ and $B(7, -2)$.

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2.5 Worksheet **Name**_____

For #1 – 3, identify the Hypothesis and Conclusion for each conditional statement.

1) If Corrine saves up $500, then she is going to buy a season pass to Disneyland.

2) If two angles are congruent, then they have the same measure.

3) If two lines are skew, then they are not on the same plane and do not intersect.

For #4 – 8, identify each conditional statement as True or False. If the statement is False, then write a counter-example to show that the statement is false.

4) If a student is a teenager, then the student is 16 years old.

5) If two angles are complementary, then they are congruent.

6) If two angles form a linear pair, then they are supplementary.

7) If an animal is a golden retriever, then the animal is a dog.

8) If two angles are vertical, then they add to 180 degrees.

For #9 – 11: For each syllogism below, write the last statement to complete the logical conclusion.

9) If Heather gets a summer job, then she will save up $700.
If Heather saves up $700, then she will buy a new computer.
Conclusion:

10) If Tracy gets all Cs or better, then his parents will let him pick a restaurant for dinner.
If Tracy gets to pick a restaurant for dinner, then he will go to Wing Stop.
Conclusion:

11) If B is the midpoint of $\overline{AC}$, then B divides $\overline{AC}$ into two congruent segments.
If B divides $\overline{AC}$ into two congruent segments, then $\overline{AB} \cong \overline{BC}$.
Conclusion:

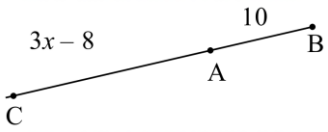
2.5 HW continued on the next page!

Geometry **Ch 2 HW Packet: Segments**

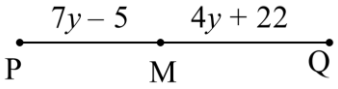
2.5 HW Continued…

For #12 – 15, find the variable for each diagram.

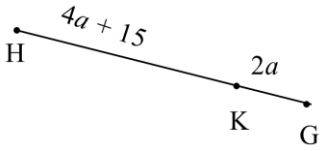
12) Find x if BC = 19.



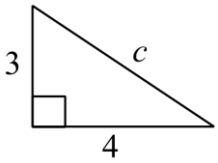
13) Find y if M is the midpoint of PQ.



14) Find a if HG = $7a$.



15) Find c.



16) Find the midpoint of FG if $F(6,-11)$; $G(-1,-3)$.

17) Find the distance between points $Y(7,3)$ and $Z(5,1)$. Simplify radical answers.

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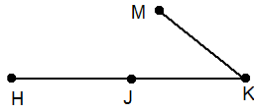
2.6 Worksheet **Name**_____

Directions: complete each proof.

1) Given: $\overline{KJ} \cong \overline{JH}$

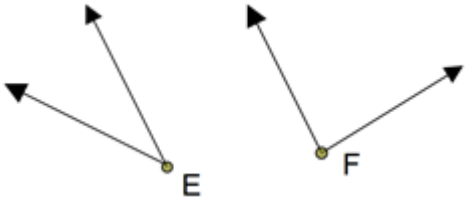
Prove: J is the midpoint of $\overline{HK}$.



1) $\overline{KJ} \cong \overline{JH}$	1) Given
2) J is the midpoint of $\overline{HK}$.	2)

2. Given:
$\angle E$ is complementary to $\angle F$.

Prove: $m\angle E + m\angle F = 90°$



Statement	Reason
1. $\angle E$ is complementary to $\angle F$.	1. Given
2. $m\angle E + m\angle F = 90°$	2.

3. Complete the proof below.

Given: $m\angle E + m\angle F = 180°$

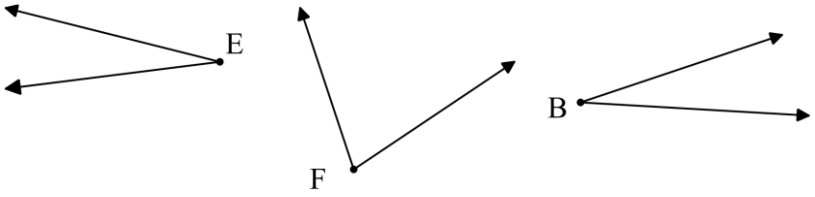
Prove: $\angle E$ is supplementary to $\angle F$.

Statement	Reason
1. $m\angle E + m\angle F = 180°$	1. Given
2. $\angle E$ is supplementary to $\angle F$.	2.

2.6 HW Continued on next Page…

Geometry **Ch 2 HW Packet: Segments**

2.6 Continued…



4. Complete the proof below.
Given: $\angle E$ is complementary to $\angle F$ and $\angle E = \angle B$
Prove: $\angle B$ is complementary to $\angle F$

Statement	Reason
1. $\angle E$ is complementary to $\angle F$ and $\angle E = \angle B$	1. Given
2. $\angle B$ is complementary to $\angle F$	2.

5. Write in the reason for the second step.

Given: $\angle 5$ and $\angle 7$ are vertical angles.
Prove: $\angle 5 \cong \angle 7$

Statement	Reason
1. $\angle 5$ and $\angle 7$ are vertical angles.	1. Given
2. $\angle 5 \cong \angle 7$	2.

For #6-8, Find the Midpoint of AB.

6) $A(2,8); B(6,21)$ 7) $A(5,10); B(-2,11)$ 8) $A(-7,5); B(-1,0)$

For #9-11, find the length of the segment with the given endpoints. Write your answer as a simplified radical, if needed. You may use *either* the Pythagorean Theorem or the Distance Formula to do these problems.

9) $A(7,2); B\ (3,7)$ 10) $P(2,0); Q(6,4)$ 11) $R(-3,2); T(-5,8)$

12) Factor: $a^2 - 36$ 13) Factor: $b^2 + 5b - 50$ 14) Simplify: $(2x + 3)^2$

15) Given segment $\overline{AB}$, where M is the midpoint $A(-3,5)$ and $M(4,1)$, then find the coordinates of B.

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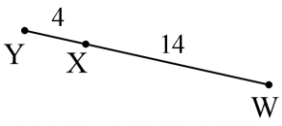
Ch 2 Review Worksheet **Name**_____

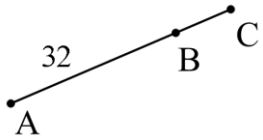
Test next class!

For #1 – 4: Find the length of the requested segments.

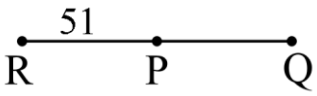
1) Find the length of YW.



2) Find BC if AC is 41.



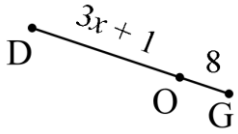
3) Find RQ if P is the midpoint of RQ.



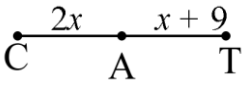
4. Find NM if M is the midpoint of NL and NL = 11.

For #5 – 9: Find the value of the variable.

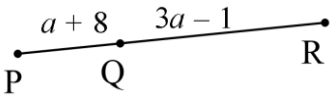
5) Find x if DG = 21.



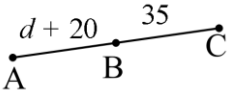
6) Find x if CT = 25.



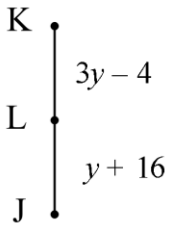
7) Find a if PR = $5a - 2$.



8) Find d if B is the midpoint of AC.



9) Find the **length of *KJ*** if L is the midpoint of KJ.



10) Given the points T, R, and S are collinear with R between T and S. If TR = $x + 2$, RS = 17, and TS = $5x - 1$. Then find the length of TS. Hint: draw a diagram.

For #11 – 12: Find the midpoint of each segment, given the endpoints. $M = \left(\frac{x_1+x_2}{2}, \frac{y_1+y_2}{2}\right)$

11) $G(2,7); V(3,21)$

12) $E(-9,-1); F(3,-6)$

Chapter 2 Review Continued on next page…

Chapter 2 Review Continued…

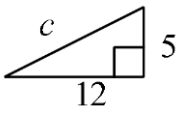
For #13 – 14: Find the length (distance) of each segment, given the endpoints. Simplify any radical answers.

$$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

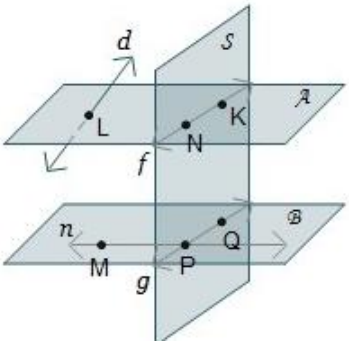
13) $X(2, 6); Y(8, 14)$

14) $A(3, -2); B(7, 2)$

For #15: Find the value of *c*. $a^2 + b^2 = c^2$



For #16 – 20, use the diagram shown.



16. Name a point that is collinear with M.
17. Name the intersection of line *g* and line *n*.
18. Name the intersection of plane LNK and plane PQK.
19. Do lines *f* and *g* appear to be parallel perpendicular, or skew?
20. Do lines *n* and *f* appear to be parallel perpendicular, or skew?

For #21 – 22, is each statement True or False? If it is false, then provide a counter-example.

21. If two positive numbers are multiplied together, then their answer is negative.

22. If two angles are congruent, then they are vertical angles.

For #23 – 24, complete each syllogism.

23. If two friends both get Saturday off from work, then they will go to Lake Tahoe.
    If the friends go to Lake Tahoe, then they will jump off the rocks at Sand Harbor.
    Conclusion:

24. If two angles form a linear pair, then they are supplementary.
    If two angles are supplementary, then they have a sum of 180 degrees.
    Conclusion:

Chapter 2 Review Continued on next page…

Geometry **Ch 2 HW Packet: Segments**

Chapter 2 Review Continued…

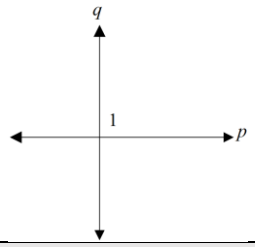
#25: Write in the reason for the second step.

Given: ∠5 and ∠7 are vertical angles.
Prove: ∠5 ≅ ∠7

Statement	Reason
1. ∠5 and ∠7 are vertical angles.	1. Given
2. ∠5 ≅ ∠7	2.

Example #26:

Given: $p \perp q$
Prove: ∠1 is a right angle.



Statement	Reason
1. $p \perp q$	1. Given
2. ∠1 is a right angle.	2.

Your test is next class! Make sure and STUDY!

Extra Credit Opportunity: Silly Syllogism

Create a silly syllogism of *at least* 4 steps that is themed around fall or Halloween. Write up your syllogism on construction paper or poster paper, and decorate your poster/paper. Your paper MUST be larger than note-book sized paper.

Worth: up to 10 bonus QUIZ points. Due: the first day your class meets after Fall Break.

Example of a Silly Syllogism:

- If it is Halloween, then Candance dresses up like a ghost.
- If Candace dresses up like a ghost, then she will go Trick or Treating.
- If she goes Trick or Treating, then she will get a lot of candy.
- If Candace gets a lot of candy, then she will give the candy to her little cousin.
- If she gives the candy to her little cousin, then her little cousin will sell candy to her friends.
- If her little cousin sells candy to her friends, then she will make a lot of money.
- Conclusion: If it is Halloween, then Candace's little cousin will ma ke a lot of money.