Geometry **Ch 4 HW Packet** **Name**_____

Ch 4 Calendar		
Date	**Day**	**Assignment** (Due the next class meeting)
11/06/23 **11/07/23**	**Monday (A)** **Tuesday (B)**	Notes: 4.1 Notes **HW: 4.1 Worksheet**
11/08/23 **11/09/23**	**Wednesday (A)** **Thursday (B)**	Notes: 4.2 Notes **HW: 4.2 Worksheet**
11/13/23 **11/14/23**	**Monday (A)** **Tuesday (B)**	Notes: 4.3 Notes **HW: 4.3 Worksheet**
11/15/23 **11/16/23**	**Wednesday (A)** **Thursday (B)**	Notes: 4.4 Notes **HW: 4.4 Worksheet**
11/17/23 **11/20/23**	**Friday (A)** **Monday (B)**	Notes: 4.5 Notes **HW: 4.5 Worksheet**
11/21/23 **11/27/23**	**Tuesday (A)** **Monday (B)**	In class: review for test (next class!) **HW: Ch 4 Review Wk**
11/28/23 **11/29/23**	**Tuesday (A)** **Wednesday (B)**	**Ch 4 Test** HW: None! 😊

HW Hints:

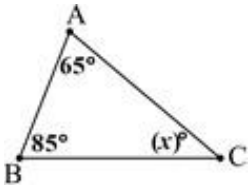
- Check your answers, and view solutions for your corrections at www.washoeschools.net/DRHSmath
- Check out our class YouTube channel: https://www.youtube.com/channel/UCh9fLvgw9metmQuIb6vQ5Zw
- Show all work and draw the diagrams for each problem.
- Students who complete every assignment this semester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

4.1 Worksheet

Name_____

For #1 – 10, find the variable(s) for each diagram.

1)



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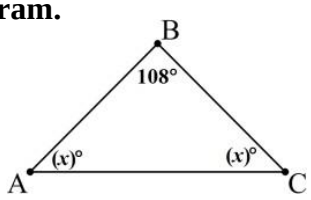

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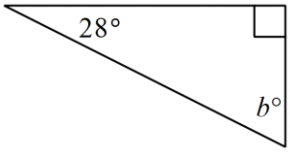

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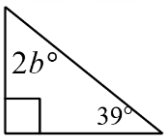

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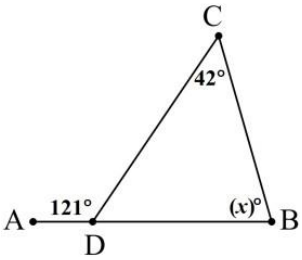

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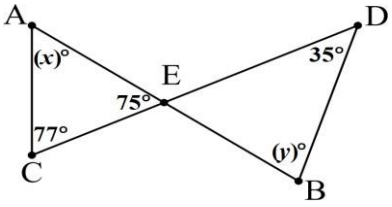

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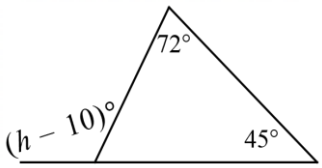

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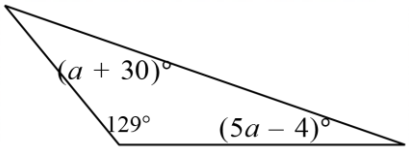

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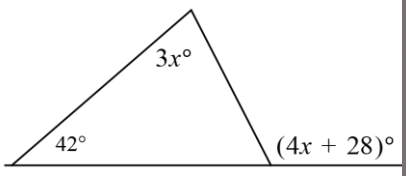
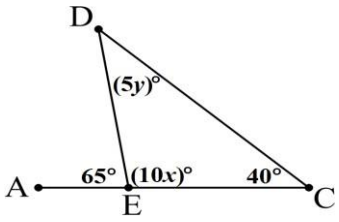


10)



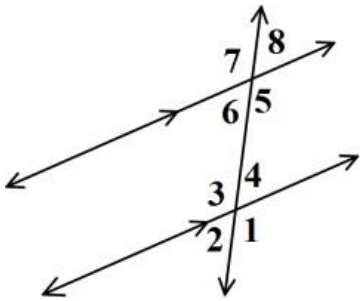
11)Using the diagram from #10, find the measure of $\angle D$.

4.1 Worksheet continued on the next page

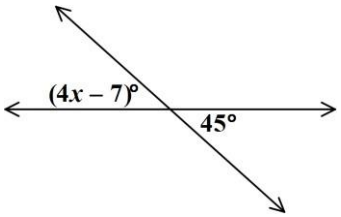
12) $\angle A$ is supplementary to $\angle B$. $m\angle A = (7x - 4)°$ and $m\angle B = (3x + 6)°$. Find the value of x.

13) From #12, find $m\angle B$.

14) Use the diagram shown below.
Given that $m\angle 5 = (4x)°$ and $m\angle 4 = (2x + 30)°$
Find x and $m\angle 8$.



15) Find x.



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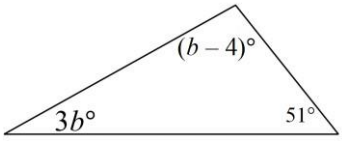


Geometry **Ch 4 HW Packet** **Name**_____

4.2 Worksheet

For #1 – 4, given the congruence statement $\Delta FGH \cong \Delta WND$, then complete each statement:

1) $\angle H \cong$?

2) $WN \cong$?

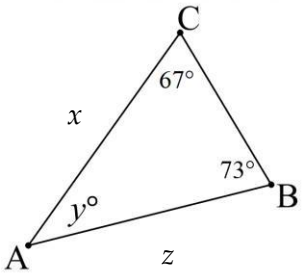
3) $FH \cong$?

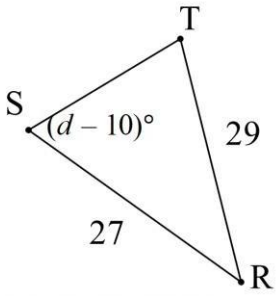
4) $\angle N \cong$?

For #5 – 8, given that $\Delta ABC \cong \Delta RTS$**,** then find each variable.

5) x

6) y





7) z

8) d

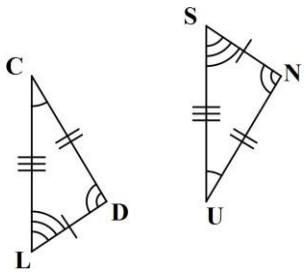
9) Given that PQ ≅ EF, $\angle R \cong \angle D$, *and* $\angle Q \cong \angle F$ then which options below show a correct congruence statement? **Select all that apply.**

A) $\Delta PQR \cong \Delta EFD$ B) $\Delta DEF \cong \Delta RPQ$ C) $\Delta QPR \cong \Delta FDE$

D) $\Delta FDE \cong \Delta QRP$ E) $\Delta PQR \cong \Delta DEF$

10) Complete the congruency statement for the pair of triangles shown.

$\Delta CLD \cong$ _____



11) Using the figure below, complete the congruency statement and identify all corresponding angles and sides. **Congruency Statement:** $\Delta GFO \cong$ _____

a. $\overline{TM} \cong$ _____

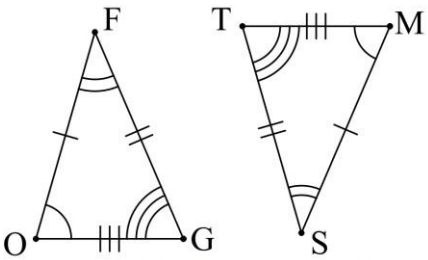
b. $\overline{SM} \cong$ _____

c. $\overline{TS} \cong$ _____

d. $\angle O \cong$ _____

f. $\angle T \cong$ _____

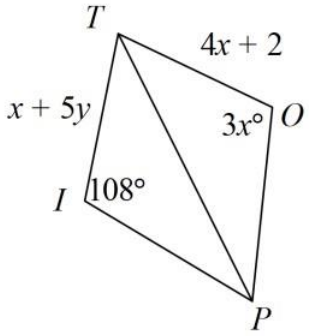
g. $\angle F \cong$ _____



4.2 Worksheet continued on next page…

For #12 – 14: In the diagram, $\Delta TIP \cong \Delta TOP$. $m\angle ITP = 22°$. Show all work!

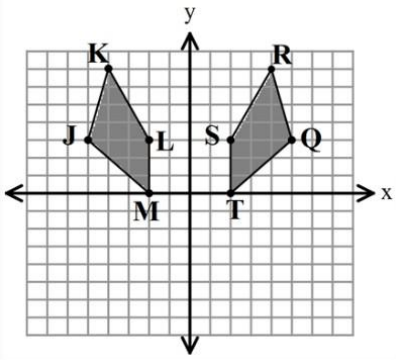
12) Find the value of x. 13) Find the value of y.



14) Find $m\angle TOP$.

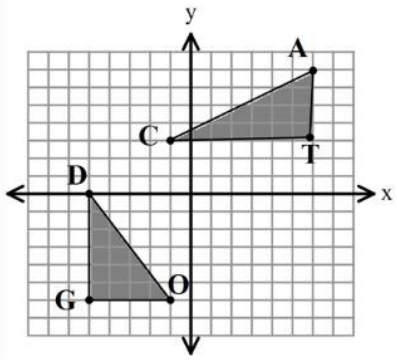
15) Using the diagram shown, are the shapes congruent?
If so, what transformation maps JKLM onto QRST?

A) No, the shapes are not congruent.
B) Yes, rotation 90 degrees clockwise about the origin.
C) Yes, translation along the vector $\langle 4, 0\rangle$.
D) Yes, reflection in the *y*-axis.
E) Yes, reflection in the *x*-axis.



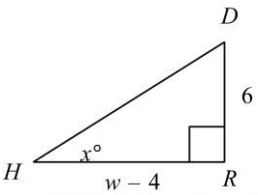
16) Using the diagram shown, are the triangles congruent?
If so, what transformation maps ΔCAT onto ΔDOG?

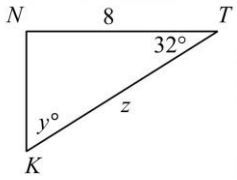
A) No, the triangles are not congruent.
B) Yes, 90 degree clockwise rotation about the origin.
C) Yes, 180 degree clockwise rotation about the origin.
D) Yes, reflection in the *x*-axis.
E) Yes, translation along the vector $\langle -4, -3\rangle$.



For 17 – 20, use the diagram shown, where $\Delta DRH \cong \Delta KNT$.

17) Find *x*. 18) Find *y*.





19) Find *w*. 20) Find *z*.

Bonus: Find the perimeter of ΔDRH.

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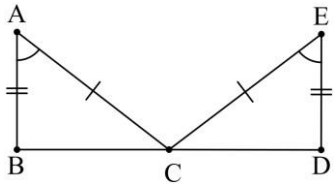
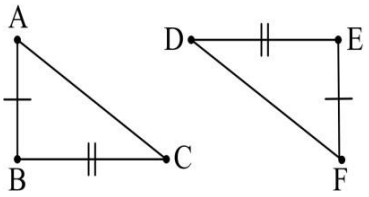
4.3 Worksheet

For #1 – 3, use the diagram shown.



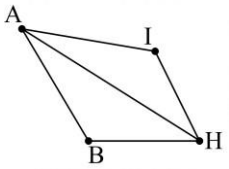
1) Are the triangles congruent?
2) If so, then complete the congruence statement: $\Delta ABC \cong \Delta$_____
3) If so, which postulate shows the triangles are congruent: SSS or SAS?

4) **Multiple Choice:** Which statement below is true for the triangles shown?



A) $\Delta ABC \cong \Delta FED$ by SSS.
B) $\Delta ABC \cong \Delta FED$ by SAS.
C) There is not enough evidence to prove congruent triangles.

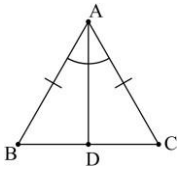
For # 5 – 7, use the diagram to complete the proof.



Given: $AB \cong AI$ and $BH \cong IH$
Prove: $\Delta ABH \cong \Delta AIH$

Statements	Reasons
1) $AB \cong AI$ and $BH \cong IH$	1) #5)
2) $AH \cong AH$	2) #6)
3) $\Delta ABH \cong \Delta AIH$	3) #7)

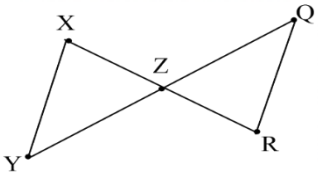
For # 8 – 10, use the diagram to complete the proof.



Given: $AB \cong AC$ and $\angle BAD \cong \angle CAD$
Prove: $\Delta ABD \cong \Delta ACD$

Statements	Reasons
1) $AB \cong AC$ and $\angle BAD \cong \angle CAD$	1) #8)
2) $AD \cong AD$	2) #9)
3) $\Delta ABD \cong \Delta ACD$	3) #10)

For # 11 – 14, use the diagram to complete the proof.

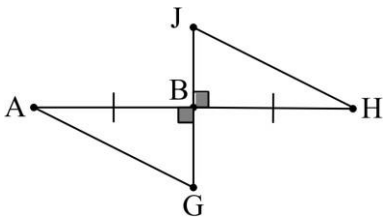


Given: $XZ \cong RZ, YZ \cong QZ$
Prove: $XY \cong RQ$

Statement	Reason
1. $XZ \cong RZ, YZ \cong QZ$	1. #11
2. #12	2. If two angles are vertical, then they are congruent.
3. $\Delta XYZ \cong \Delta RQZ$	3. #13
4. $XY \cong RQ$	4. #14

4.3 continued on the next page…

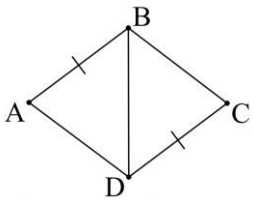
15) **Multiple Choice:** What additional information is required in order to prove the triangles shown are congruent by SAS?



A) $\angle G \cong \angle A$ B) $\overline{AB} \cong \overline{GB}$

C) $\overline{JB} \cong \overline{GB}$ D) $\overline{AG} \cong \overline{HJ}$

16) What additional information is required in order to prove $\Delta ABD \cong \Delta CDB$ are congruent by SSS?



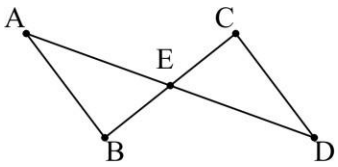
A. $\angle C \cong \angle A$ B. $\overline{AD} \cong \overline{BD}$

C. $\angle C \cong \angle B$ D. $\overline{AD} \cong \overline{BC}$

For # 17 – 18, use the diagram to complete the proof.

Given: $AE \cong ED, BE \cong EC$

Prove: $\Delta ABE \cong \Delta DCE$

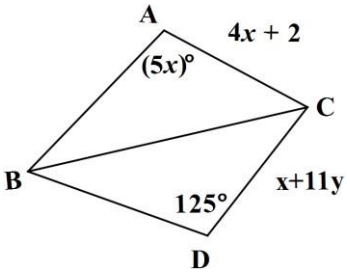


Statement	Reason
1. $AE \cong ED, BE \cong EC$	1. Given
2. $\angle AEB \cong \angle DEC$	2. #17
3. $\Delta ABE \cong \Delta DCE$	3. #18

For #19 – 21: In the diagram, $\Delta ABC \cong \Delta DBC$. $m\angle DBC = 35°$. Show all work!

19) Find the value of x.

20) Find the value of y.



21) Find $m\angle A$.

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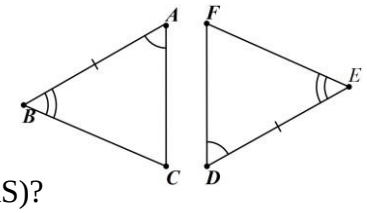
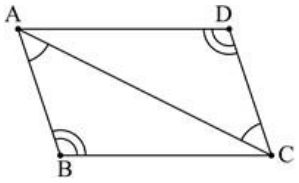
4.4 Worksheet



For #1 – 3, use the diagram shown to the right.

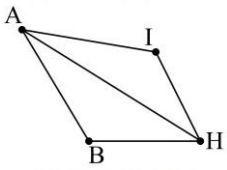
1) Are the triangles congruent?
2) If so, then complete the congruence statement: $\Delta ABC \cong \Delta$_____
3) If so, which theorem or postulate could prove this (SSS, SAS, ASA, or AAS)?

4) **Multiple Choice:** Which statement below is true for the triangles shown?



A) $\Delta ABC \cong \Delta DCA$ by ASA.
B) $\Delta ABC \cong \Delta DCA$ by AAS.
C) $\Delta ABC \cong \Delta CDA$ by ASA.
D) $\Delta ABC \cong \Delta CDA$ by AAS.

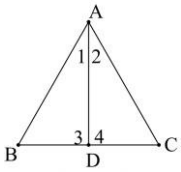
For # 5 – 7, use the diagram to complete the proof.



Given: $\angle B \cong \angle I$ and $\angle BAH \cong \angle AHI$
Prove: $\Delta ABH \cong \Delta HIA$

Statements	Reasons
1) $\angle B \cong \angle I$ and $\angle BAH \cong \angle AHI$	1) #5)
2) $AH \cong AH$	2) #6)
3) $\Delta ABH \cong \Delta HIA$	3) #7)

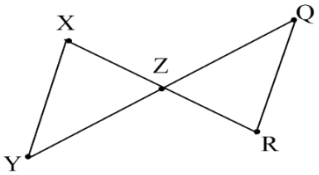
For # 8 – 10, use the diagram to complete the proof.



Given: $\angle 1 \cong \angle 2$ and $\angle 3 \cong \angle 4$
Prove: $\Delta ABD \cong \Delta ACD$

Statements	Reasons
1) $\angle 1 \cong \angle 2$ and $\angle 3 \cong \angle 4$	1) #8)
2) #9	2) Reflexive Property
3) $\Delta ABD \cong \Delta ACD$	3) #10)

For # 11 – 14, use the diagram to complete the proof.



Given: $XZ \cong RZ, \angle X \cong \angle R$
Prove: $XY \cong RQ$

Statement	Reason
1. $XZ \cong RZ, \angle X \cong \angle R$	1. #11
2. #12	2. If two angles are vertical, then they are congruent.
3. $\Delta XYZ \cong \Delta RQZ$	3. #13
4. $XY \cong RQ$	4. #14

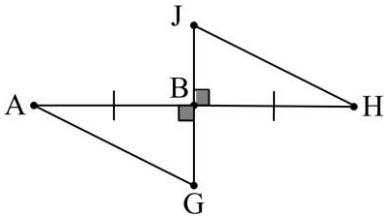
4.4 continued on the next page…

15) What additional information is required to prove that $\Delta ABG \cong \Delta HBJ$ by HL?

A)

A. $\angle G \cong \angle A$ B. $\overline{AB} \cong \overline{GB}$

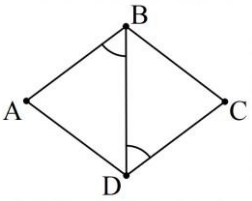
C. $\overline{JB} \cong \overline{GB}$ D. $AG \cong HJ$



16) What additional information is required to prove that $\Delta ABD \cong \Delta CDB$ by AAS?

A. $\angle C \cong \angle A$ B. $\overline{AD} \cong \overline{BD}$

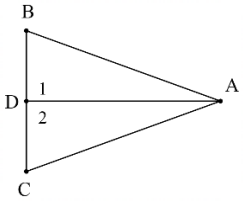
C. $\angle C \cong \angle ABD$ D. $\overline{AD} \cong \overline{BC}$



For # 17 – 19, use the diagram to complete the proof.

Given: $AD \perp BC; AB \cong AC$

Prove: $\Delta ABD \cong \Delta ACD$

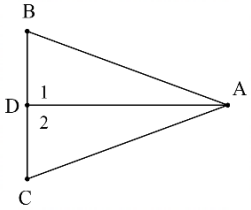


Statement	Reason
1. $AD \perp BC; AB \cong AC$	1. Given
2. #17	2. If ⊥ segments, then right angles are created.
3. $\overline{AD} \cong \overline{AD}$	3. #18
4. $\Delta ABD \cong \Delta ACD$	4. #19

For # 20 – 22, use the diagram to complete the proof.

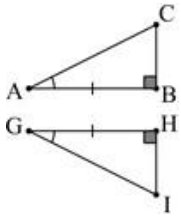
Given: $\angle 1 \cong \angle 2$, D is the midpoint of $\overline{BC}$

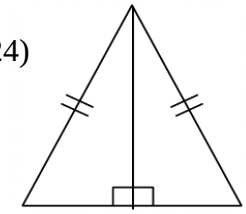
Prove: $\Delta ABD \cong \Delta ACD$

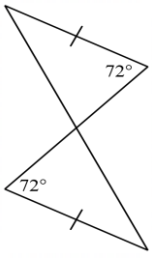


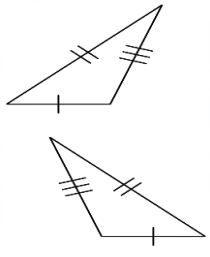
Statement	Reason
1. $\angle 1 \cong \angle 2$, D is the midpoint of $\overline{BC}$	1. Given
2. #20	2. If a point is a midpoint, then it divides a segment into two congruent segments.
3. #21	3. Reflexive Property
4. $\Delta ABD \cong \Delta ACD$	4. #22

For #23 – 26, what theorem or postulate could be used to show the triangles are congruent? Choose from SSS, SAS, ASA, AAS, or HL.

23) 

24) 

25) 

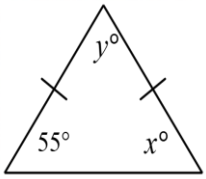
26) 

Geometry **Ch 4 HW Packet** **Name**_____

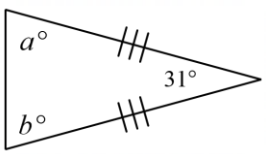
4.5 Worksheet

For #1 – 12, find the value of the variable(s) for each diagram.

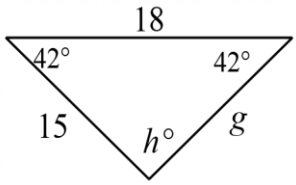
1)



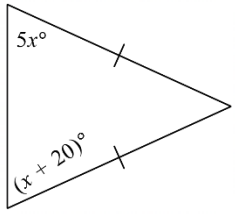
2)



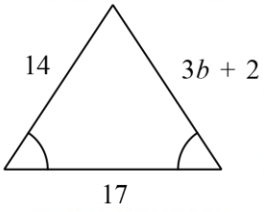
3)



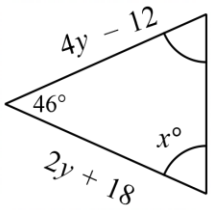
4)



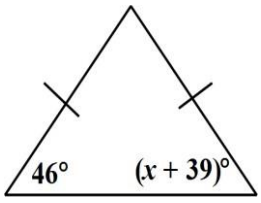
5)



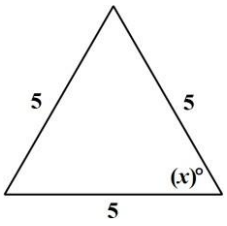
6)



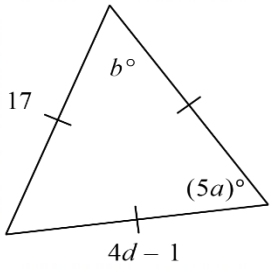
7)



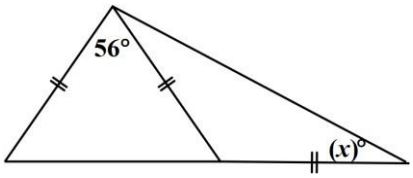
8)



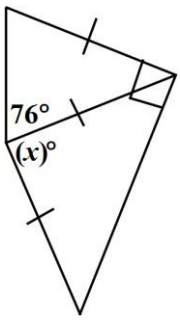
9)



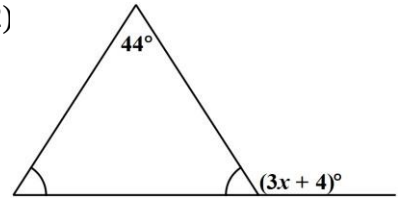
10)



11)



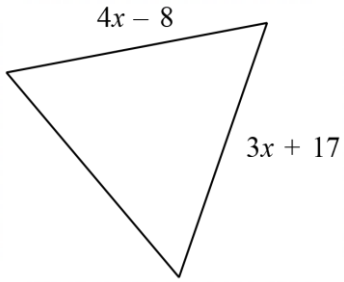
12)



4.5 continued on the next page…

For #13 – 14, the triangle shown to the right is equilateral.

13) Find x.



14) What is the perimeter of the triangle?

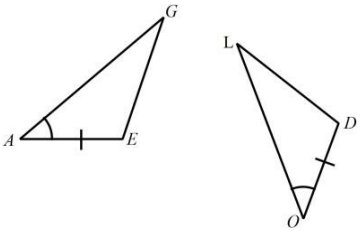
15. **Multiple Choice:** In the figure $\angle GAE \cong \angle LOD$ and $AE \cong OD$. What information is needed to prove that $\Delta AGE \cong \Delta OLD$ by SAS?

A. $\overline{GE} \cong \overline{LD}$

B. $\overline{AG} \cong \overline{OL}$

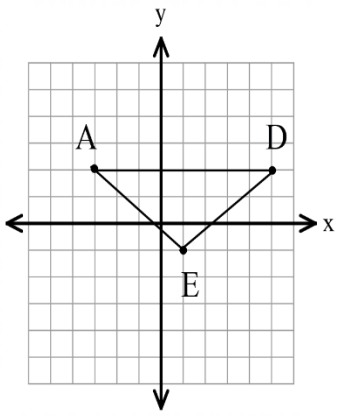
C. $\angle AGE \cong \angle OLD$

D. $\angle AEG \cong \angle ODL$

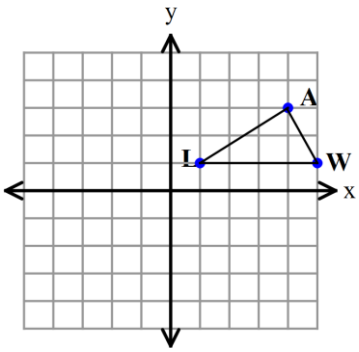


16) Classify ΔADE as isosceles or equilateral. Use the distance formula to justify your answer.

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

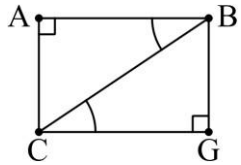


17) In the diagram below, A is rotated 90° clockwise about the orign, and then is translated along the vector $(x, y) \rightarrow (x - 2, y + 4)$. What are the coordinates of the final image A''?

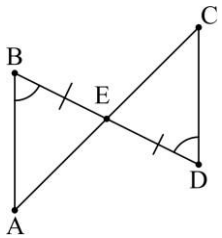


For #18 – 20: Using the congruent triangles shown, complete the congruence statement. Then provide the reason why each pair of triangles are congruent. Choose from SSS, SAS, ASA, AAS, or HL.

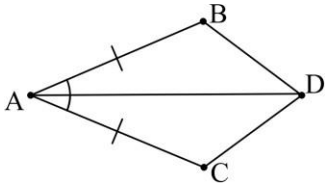
18) $\Delta ABC \cong \Delta$_____ by _____



19) $\Delta ABE \cong \Delta$_____ by _____



20) $\Delta ABD \cong \Delta$_____ by _____

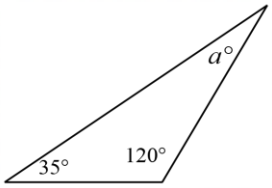


Geometry **Ch 4 HW Packet** **Name**_____

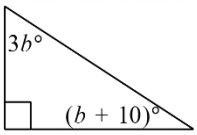
Ch 4 Review Worksheet

For #1 – 9, find the value of the variable for each diagram.

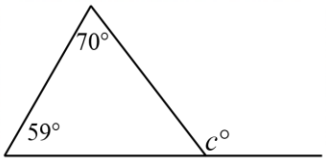
1)



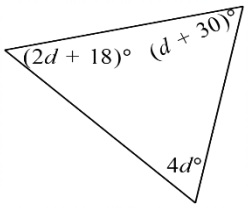
2)



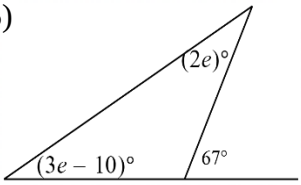
3)



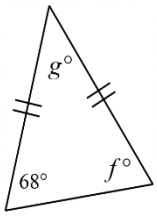
4)



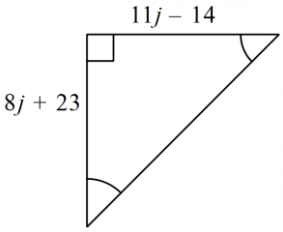
5)



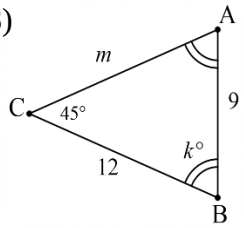
6)



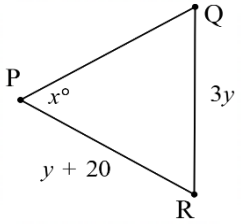
7)



8)



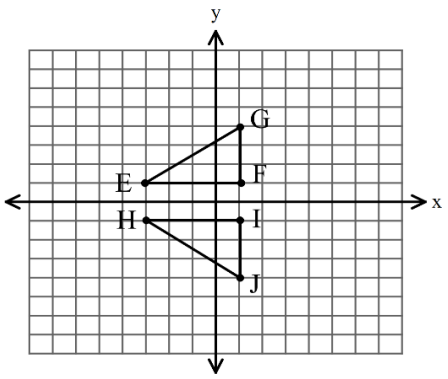
9) ΔPQR is equilateral.



10) From #8, find the perimeter of ΔABC.

11) From #9, find the perimeter of ΔPQR.

For #12 – 13: Use the graph shown to the right, where $\Delta EGF \cong \Delta HJI$.



12) What transformation maps ΔEGF onto ΔHJI?

A) reflection B) translation C) rotation

13) Which corresponding parts are congruent? Fill in the blanks.

$\overline{EF} \cong$ ___ $\angle E \cong$ ___

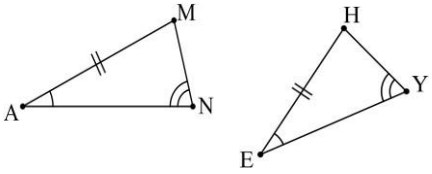
$\overline{EG} \cong$ ___ $\angle G \cong$ ___

$\overline{GF} \cong$ ___ $\angle F \cong$ ___

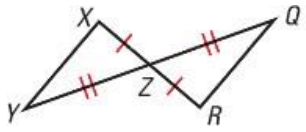
Ch 4 Rev Wk continued on the next page…

For #14 – 19, complete the congruent statement, and supply the theorem or postulate that proves the triangles are congruent. Choose from SSS, SAS, ASA, AAS, or HL.

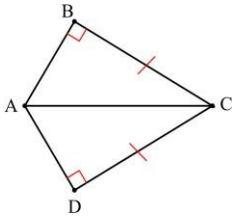
14) $\Delta MAN \cong \Delta$_____
by _____



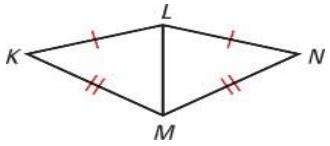
15) $\Delta XYZ \cong \Delta$_____
by _____



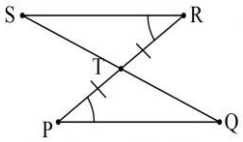
16) $\Delta ADC \cong \Delta$_____
by _____



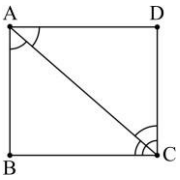
17) $\Delta KLM \cong \Delta$_____
by _____



18) $\Delta RST \cong \Delta$_____
by _____

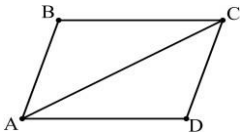


19) $\Delta ADC \cong \Delta$_____
by _____



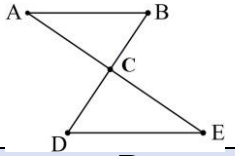
For #20 – 26, complete each proof.

Given: $AB \cong CD, BC \cong DA$
Prove: $\Delta ABC \cong \Delta CDA$



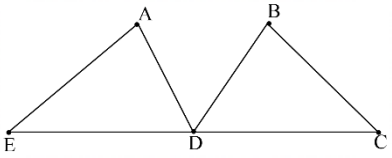
Statement	Reason
1. $AB \cong CD, BC \cong DA$	1. Given
2. **#20**	2. Reflexive Property
3. $\Delta ABC \cong \Delta CDA$	3. **#21**

Given: $AB \cong ED, \angle A \cong \angle E$
Prove: $\Delta ACB \cong \Delta ECD$



Statement	Reasons
1) $AB \cong ED, \angle A \cong \angle E$	1) Given
2) $\angle ACB \cong \angle ECD$	2) **#22**
3) $\Delta ACB \cong \Delta ECD$	3) **#23**

Given: D is midpoint of CE $ADE \cong \angle BDC$
and $AD \cong BD$.
Prove: $AE \cong BC$



Statement	Reasons
1) D is midpoint of CE, $AD \cong BD, \angle ADC \cong \angle BDE$	Given
2) #**24**	2) If a point is a midpoint, then it divides the segment into two congruent segments.
3) $\Delta ADE \cong \Delta BDC$	3) **#25**
4) $AE \cong BC$	4) **#26**