

No Bell Ringers this week...

Get out:

9.4 ws

Hw tracker

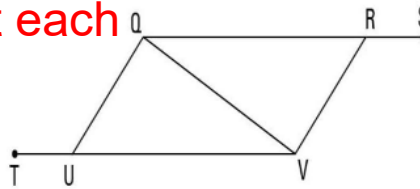
Cheat sheets

Name: KEY 9.4 Quadrilateral Proofs

1/2 pt each

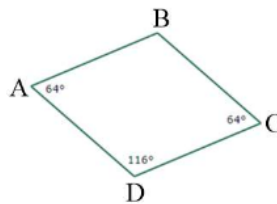
1. Given: $\angle UQV \cong \angle RVQ$
 $\angle TUQ \cong \angle SRV$

Prove: $QRVU$ is a parallelogram



Statement	Reason
1. $\angle UQV \cong \angle RVQ$ $\angle TUQ \cong \angle SRV$	1. Given
2. $m\angle TUQ + m\angle QUV = 180^\circ$ $m\angle SRV + m\angle QRV = 180^\circ$	2. Definition of a linear pair
3. $m\angle TUQ + m\angle QUV = m\angle SRV + m\angle QRV$	3. Substitution Property
4. $m\angle TUQ + m\angle QUV = m\angle TUQ + m\angle QRV$	4. Substitution Property
5. $m\angle QUV \cong m\angle QRV$	5. Subtraction Property
6. $\overline{QV} \cong \overline{QV}$	6. Reflexive
7. $\triangle UQV \cong \triangle RVQ$	7. AAS
8. $\overline{UQ} \cong \overline{RV}$, $\overline{UV} \cong \overline{RQ}$	8. CPCTC
9. $QRVU$ is a parallelogram	9. Both pairs of opposite sides are \cong then \square

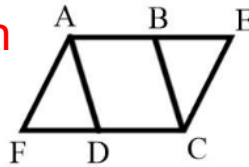
2. Given: $m\angle A = m\angle C = 64^\circ$
 $m\angle D = 116^\circ$
 Prove: $ABCD$ is a parallelogram



Statement	Reason
1. $m\angle A = m\angle C = 64^\circ$, $m\angle D = 116^\circ$	1. Given
2. $\angle A$ and $\angle D$ are supplementary	2. Definition of Supplementary
3. $\overline{AB} \parallel \overline{DC}$	3. Converse of Same Side Interior Angle Theorem
4. $\angle D$ and $\angle C$ are supplementary	4. Definition of Supplementary
5. $\overline{AD} \parallel \overline{BC}$	5. Converse of Same Side Interior Angle Theorem
6. $ABCD$ is a parallelogram	6. If Opposite sides are \parallel then it's a \square

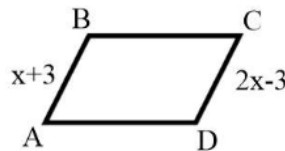
1/2 pt each

3. Given: $\overline{FD} \cong \overline{BE}$
 $AECF$ is a parallelogram
 Prove: $\overline{AD} \cong \overline{BC}$



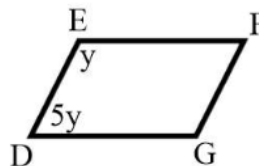
Statement	Reason
1. $\overline{FD} \cong \overline{BE}$, $AECF$ is a parallelogram	1. Given
2. $\angle F \cong \angle E$	2. In \square both pairs of opposite \angle 's are \cong
3. $\overline{AF} \cong \overline{EC}$	3. In \square both pairs of opposite sides are \cong
4. $\triangle AFD \cong \triangle CEB$	4. SAS
5. $\overline{AD} \cong \overline{BC}$	5. CPCTC

4. Given: $ABCD$ is a parallelogram
 Prove: $x = 6$



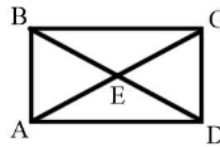
Statement	Reason
1. $ABCD$ is a parallelogram	1. Given
2. $\overline{AB} \cong \overline{DC}$	2. In \square both pairs of opposite sides are \cong
3. $AB = DC$	3. Congruent Segments have equal length
4. $x + 3 = 2x - 3$	4. Substitution Property
5. $3 = x - 3$	5. Subtraction Property of Equality
6. $6 = x$	6. Addition Property of Equality
7. $x = 6$	7. Symmetric Property of Equality

5. Given: $DEFG$ is a parallelogram
 Prove: $m\angle D = 150^\circ$



Statement	Reason
1. $DEFG$ is a parallelogram	1. Given
2. $\angle D$ and $\angle E$ are supplementary	2. Same Side Interior Angles are Supplementary
3. $m\angle D + m\angle E = 180^\circ$	3. Definition of Supplementary Angles
4. $5y + y = 180^\circ$	4. Substitution Property
5. $6y = 180^\circ$	5. Substitution Property
6. $y = 30^\circ$	6. Division Property of Equality
7. $m\angle D = 150^\circ$	7. Substitution Property

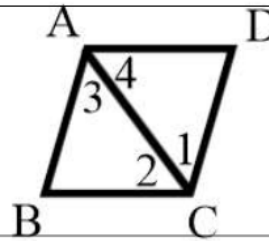
6. Given: $ABCD$ is a rectangle
 $AC = 7y - 19$
 $BD = 5y + 1$
 Prove: $y = 10$



1/2 pt each

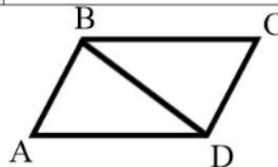
Statement	Reason
1. $ABCD$ is a rectangle	1. Given
2. $\overline{AC} \cong \overline{BD}$	2. Diagonals in a rectangle are congruent
3. $AC = BD$	3. Congruent Segments have Equal Length
4. $AC = 7y - 19$, $BD = 5y + 1$	4. Given
5. $7y - 19 = 5y + 1$	5. Substitution Property of Equality
6. $2y - 19 = 1$	6. Subtraction Property of Equality
7. $2y = 20$	7. Addition Property of Equality
8. $y = 10$	8. Division Property of Equality

7. Given: $ABCD$ is a rhombus
 Prove: \overline{AC} bisects $\angle BAD$ and $\angle BCD$



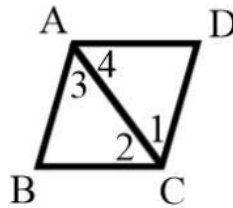
Statement	Reason
1. $ABCD$ is a rhombus	1. Given
2. $\overline{AB} \cong \overline{AD} \cong \overline{CB} \cong \overline{CD}$	2. Definition of a Rhombus
3. $\overline{AC} \cong \overline{AC}$	3. Reflexive Property
4. $\triangle ABC \cong \triangle ADC$	4. SSS
5. $\angle 3 \cong \angle 4$ and $\angle 2 \cong \angle 1$	5. CPCTC
6. \overline{AC} bisects $\angle BAD$ and $\angle BCD$	6. Definition of an angle bisector

8. Given: $\overline{AB} \cong \overline{CD}$ and $\overline{BC} \cong \overline{DA}$
 Prove: $ABCD$ is a parallelogram



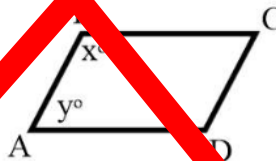
Statement	Reason
1. $\overline{AB} \cong \overline{CD}$ and $\overline{BC} \cong \overline{DA}$	1. Given
2. $\overline{BD} \cong \overline{BD}$	2. Reflexive Property
3. $\triangle ABD \cong \triangle CDB$	3. SSS
4. $\angle ADB \cong \angle CBD$ and $\angle CDB \cong \angle ABD$	4. CPCTC
5. $\overline{AB} \parallel \overline{DC}$ and $\overline{BC} \parallel \overline{AD}$	5. Converse of Corresponding Angles Theorem
6. $ABCD$ is a parallelogram	6. Definition of a Parallelogram

Given: \overline{AC} bisects $\angle BAD$ and $\angle BCD$
 Prove: $ABCD$ is a rhombus



Statement	Reason
1. \overline{AC} bisects $\angle BAD$ and $\angle BCD$	1. Given
2. $\angle 1 \cong \angle 2$ and $\angle 3 \cong \angle 4$	2. Definition of an angle bisector
3. $\overline{AC} \cong \overline{AC}$	3. Reflexive Property
4. $\triangle ABC \cong \triangle ADC$	4. ASA
5. $\overline{AB} \cong \overline{AD}$ and $\overline{BC} \cong \overline{CD}$	5. CPCTC
6. $ABCD$ is a parallelogram	6. Given
7. $\overline{AB} \cong \overline{CD}$ and $\overline{BC} \cong \overline{AD}$	7. In \square both pairs of opposite sides are \cong
8. $\overline{AB} \cong \overline{AD} \cong \overline{BC} \cong \overline{CD}$	8. Transitive Property
9. $ABCD$ is a rhombus	9. Definition of a Rhombus

10. Given: $\angle A \cong \angle C$ and $\angle B \cong \angle D$
 Prove: $ABCD$ is a parallelogram



Statement	Reason
1. $\angle A \cong \angle C$ and $\angle B \cong \angle D$	1. Given
2. $m\angle A + m\angle B + m\angle C + m\angle D = 360^\circ$	2. The sum of the measures of the angles of a quadrilateral is 360°
3. $x + y + x + y = 360$	3. Substitution Property
4. $2x + 2y = 360^\circ$	4. Substitution Property
5. $x + y = 180^\circ$	5. Division Property of Equality
6. $\angle A$ and $\angle B$ are supplementary $\angle C$ and $\angle D$ are supplementary	6. Definition of supplementary angles
7. $\overline{AD} \parallel \overline{BC}$ and $\overline{AB} \parallel \overline{DC}$	7. Converse of Same side Interior Angle Theorem
8. $ABCD$ is a parallelogram	8. Definition of a parallelogram

Turn in hw trackers - Weeks 7 - 8

Make sure weeks are labeled and score is totaled

8.4 Exterior Angles ws

8.5 Perpendicular Bisectors ws

8.6 Medians ws

9.2 Properties of Parallelograms ws

9.3 Properties of quadrilaterals ws

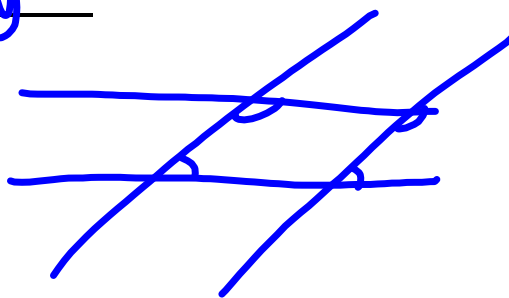
9.4 Quadrilateral Proofs ws

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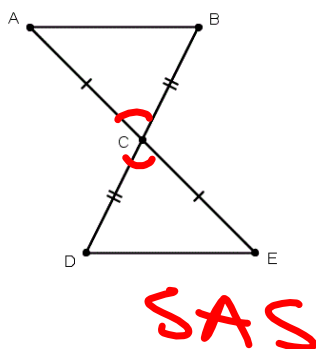
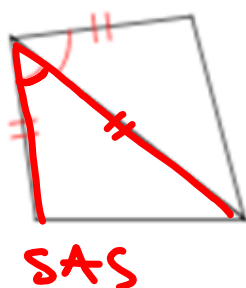
WHITEBOARD REVIEW

Fill in the blank

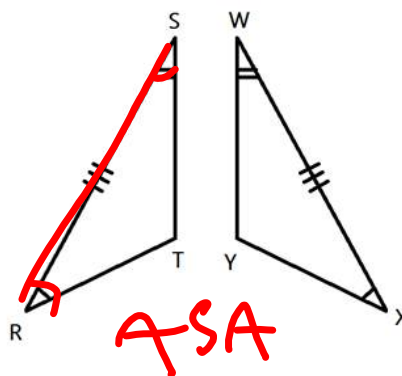
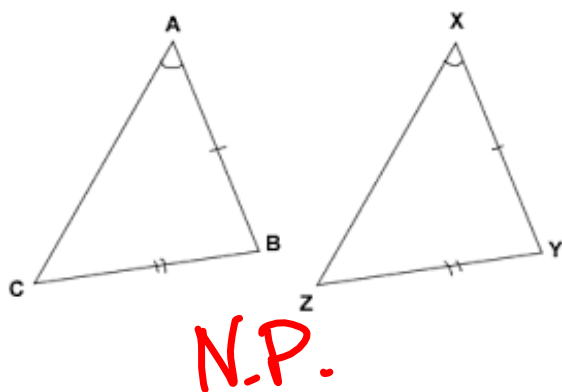
If a transversal intersects parallel lines,
then same side interior angles formed
are supplementary



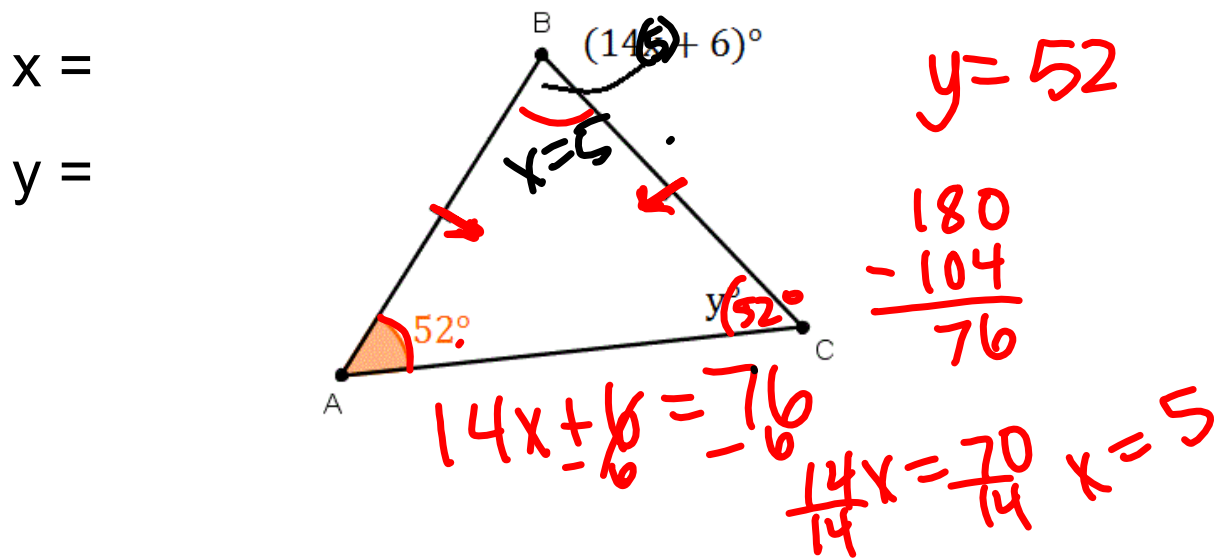
State by which theorem you know the triangles are congruent. If they aren't, write "not possible"



State by which theorem you know the triangles are congruent. If they aren't, write "not possible"

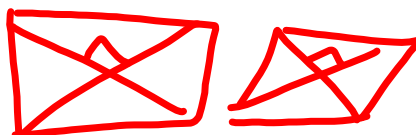


Find the values of x and y

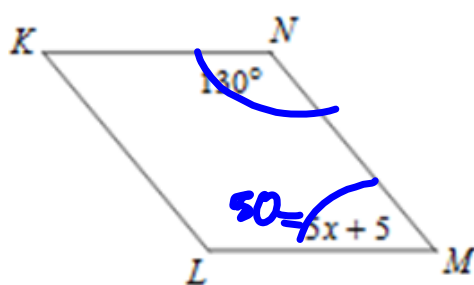


Fill in the blank

Diagonals are perpendicular in a square
and a rhombus



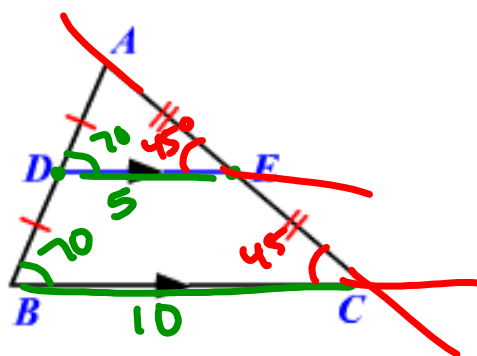
Solve for x



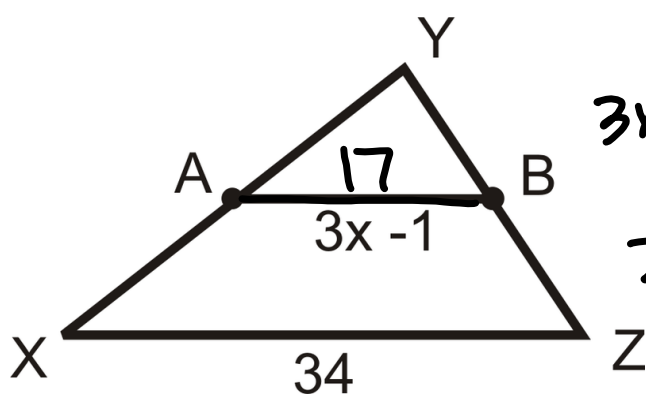
$$\begin{aligned} 50 &= 5x + 5 \\ -5 & \\ \hline 45 &= 5x \\ \frac{45}{5} &= \frac{5x}{5} \\ x &= 9 \end{aligned}$$
$$130 + 5x + 5 = 180$$

Fill in the blank

DE is called a Midsegment

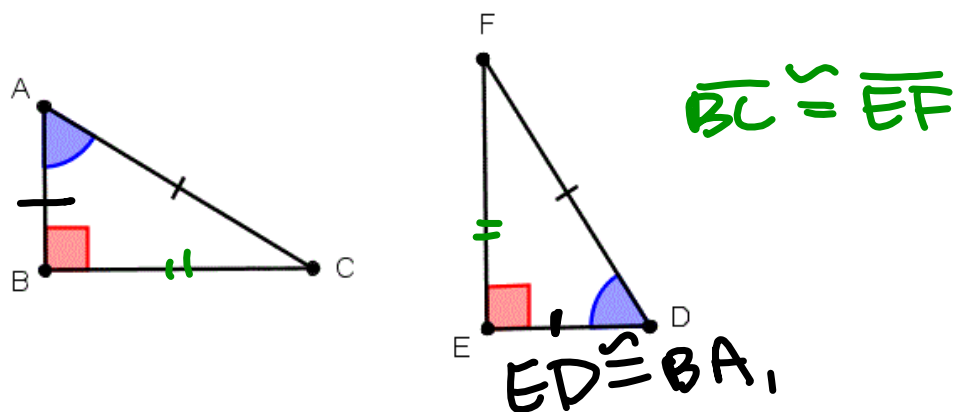


AB is a midsegment. Solve for x

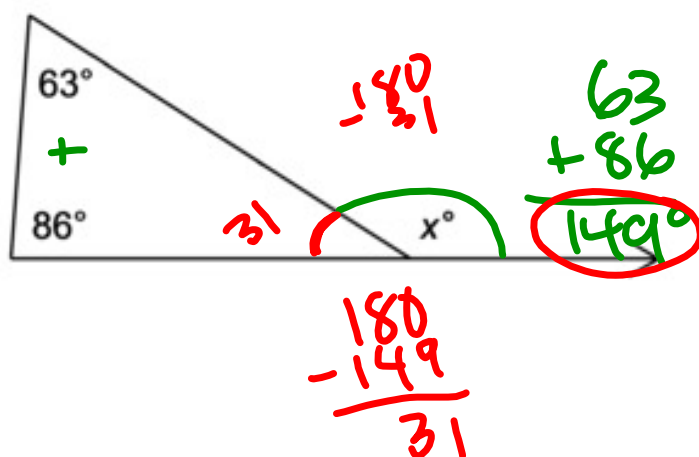


$$3x - 1 = 17 \quad \frac{3x}{3} = \frac{18}{3}$$
$$x = 6$$
$$2(3x - 1) = 34$$

What information is missing in order to prove the triangles are congruent by HL?



Find the value of x

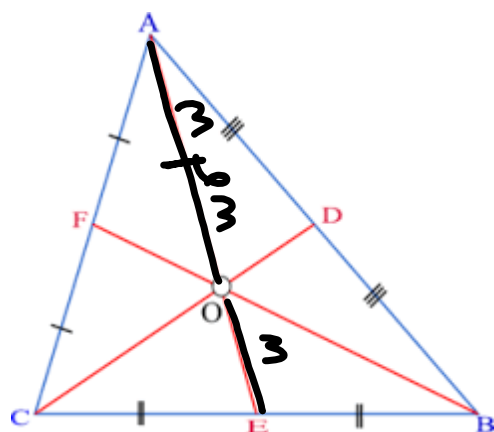


Find the measure of angle A and angle B

$5x + 3 + 4x + 8 + 34 = 180$ | $5x + 3 + 4x + 8 = 146$
 $9x + 45 = 180$ | $9x + 11 = 146$
 $\quad -45 \quad -45$ | $\quad -11 \quad -11$
 $9x = 135$ | $9x = 135$
 $x = 15$ | $x = 15$

$A = 78^\circ$
 $\angle B = 68^\circ$

Fill in the blank
Point O is called the Centroid



ABCD is a rhombus

$m\angle ABE = 25$ degrees

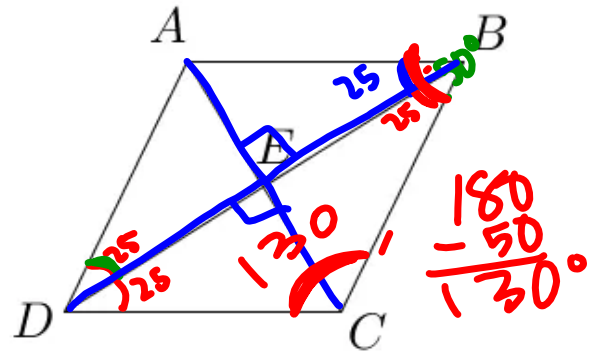
$$m\angle ABC = 50^\circ$$

$$m\angle ADE = 25^\circ$$

$$m\angle CED = 90^\circ$$

$$m\angle DCB = 130^\circ$$

$$m\angle AEB = 90$$

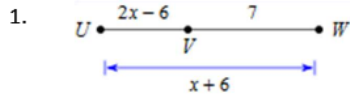


due Thursday

Math 2B Properties and Proofs Review Name: _____

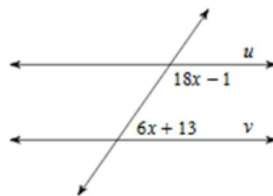
Multiple Choice Practice

Find the value of x , by setting up the correct equation form the given diagram or information.



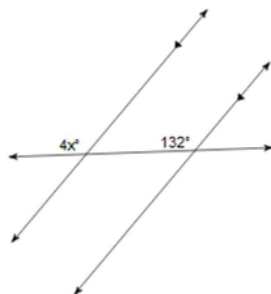
- A) -5
- B) 5
- C) 6
- D) 10

3. to make $u \parallel v$



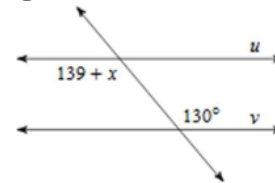
- A) -7
- B) 5
- C) 7
- D) 9

5.



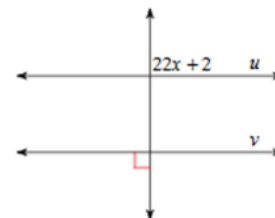
- A) 32
- B) 33
- C) 35
- D) 36

2. to make $u \parallel v$



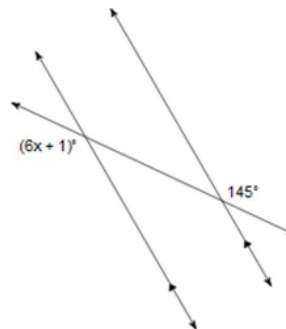
- A) -11
- B) -10
- C) -9
- D) 9

4. to make $u \parallel v$

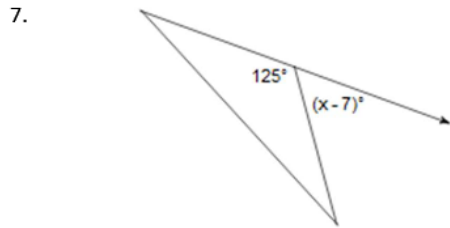


- A) -7
- B) -5
- C) 4
- D) 11

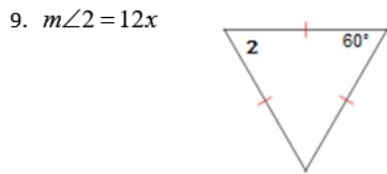
6.



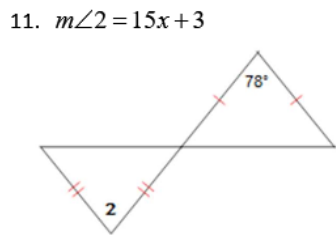
- A) 23
- B) 24
- C) 26
- D) 27



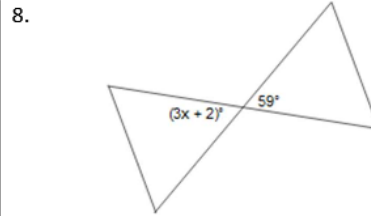
- A) 58
- B) 61
- C) 62
- D) 63



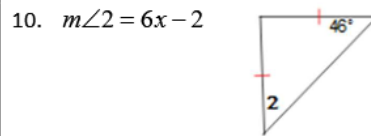
- A) -7
- B) -5
- C) -4
- D) 5



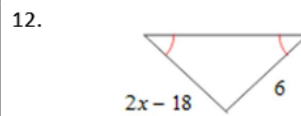
- A) -8
- B) -7
- C) 5
- D) 7



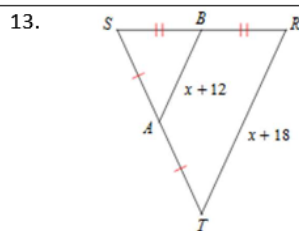
- A) 18
- B) 19
- C) 20
- D) 21



- A) -8
- B) -6
- C) 5
- D) 8



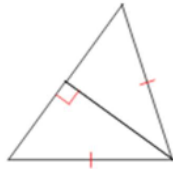
- A) -11
- B) -6
- C) 8
- D) 12



- A) -9
- B) -6
- C) 8
- D) 12

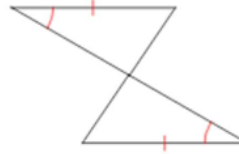
State if the two triangles can be proven congruent. If so, state how you know.

14.



- A) ASA
- B) SSS
- C) HL
- D) not congruent

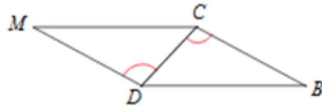
15.



- A) LA
- B) SAS
- C) ASA
- D) AAS

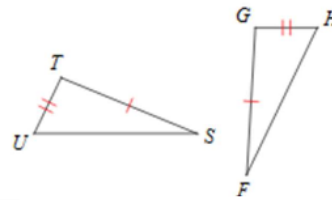
What additional information is needed to show the triangles are congruent for the given postulate or theorem.

16. ASA



- A) $\angle BDC \cong \angle MCD$
- B) $\overline{BD} \cong \overline{MC}$
- C) $\overline{DC} \cong \overline{CD}$ or $\overline{CB} \cong \overline{DM}$
- D) $\angle DCB \cong \angle CDM$

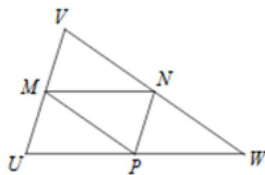
17. SAS



- A) $\overline{TU} \cong \overline{GH}$
- B) $\angle S \cong \angle F$ or $\angle T \cong \angle G$
- C) $\angle T \cong \angle G$
- D) $\overline{ST} \cong \overline{FG}$ or $\overline{US} \cong \overline{HF}$

In the triangle, M, N, and P are the midpoints of the sides. Name a segment parallel to the one given.

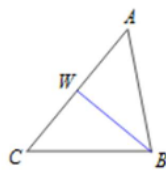
18. $\overline{NP} \parallel$ ___



- A) \overline{MP}
- B) \overline{UV}
- C) \overline{VW}
- D) \overline{UW}

Each figure shows a triangle with one or more of its medians. Find the value of x from the given information

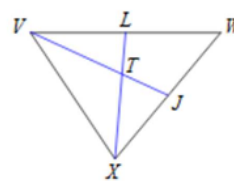
19.



$WC = 2x - 5$ and $WA = x + 3$

- A) 1
- B) 3
- C) 8
- D) 9

20.

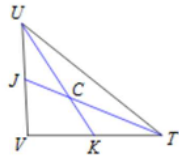


$XT = 3x + 3$ and $TL = 2x - 1$

- A) 10
- B) 9
- C) 5
- D) 3

Each figure shows a triangle with one or more of its medians. Find the value of x from the given information

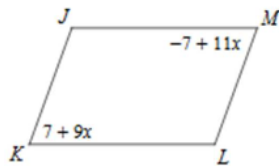
21. $UK = 3x$ and $CK = 2x - 1$



- A) 1
- B) 5
- C) 6
- D) 9

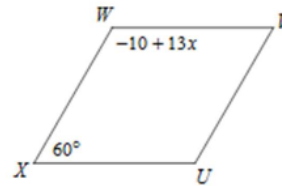
Each figure is a parallelogram. Find the value of x .

22.



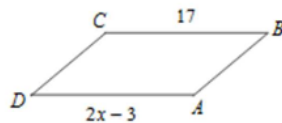
- A) 2
- B) 5
- C) 6
- D) 7

23.



- A) 12
- B) 10
- C) 5
- D) 2

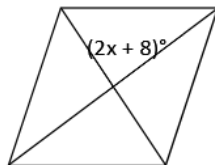
24.



- A) 2
- B) 4
- C) 9
- D) 10

The figure below is a rhombus. Find the value of x .

25.



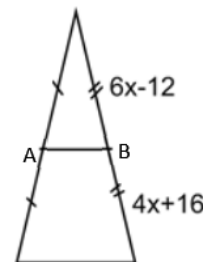
- A) 31
- B) 41
- C) 58
- D) 60

26. Which of these statements are true for all parallelograms?

- A) Diagonals bisect each other.
- B) Diagonals are congruent.
- C) Consecutive angles are congruent.
- D) All sides are congruent.

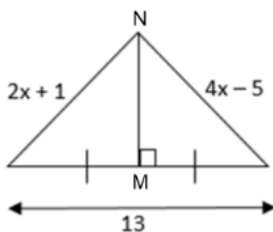
27. Find the value of x that proves AB is a midsegment.

- A) 2
- B) 2.8
- C) 5
- D) 14



28. Given MN is a perpendicular bisector, find the value of x .

- A) -2
- b) 1
- C) 3
- D) 6

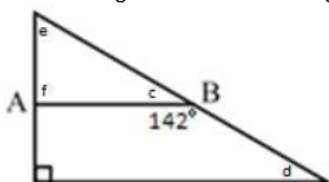


29. What is the relationship between $\angle a$ and $\angle b$.

- A) Complimentary
- B) Congruent
- C) Supplementary
- D) Cannot be determined

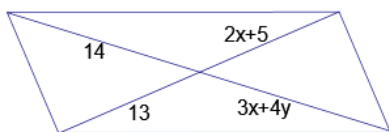


30. Given midsegment AB of the triangle below, find the values of $\angle c$, $\angle d$, $\angle e$ and $\angle f$.



- A) $c = 28^\circ, d = 142^\circ, e = 62^\circ, f = 90^\circ$
- B) $c = 38^\circ, d = 38^\circ, e = 62^\circ, f = 90^\circ$
- C) $c = 38^\circ, d = 38^\circ, e = 52^\circ, f = 90^\circ$
- D) $c = 142^\circ, d = 38^\circ, e = 38^\circ, f = 142^\circ$

31. In the following parallelogram, find the value of Y .



- A) $\frac{1}{2}$
- B) $\frac{1}{3}$
- C) $\frac{1}{4}$
- D) 4

Name the property:

- 32) If $a = b$ and $b = c$ then $a = c$ _____
- 33) $A = A$ _____
- 34) If $a = b$, then $a + c = b + c$ _____
- 35) If $a = b$, then $b = a$ _____
- 36) If two sides of a triangle are congruent, then the angles opposite those sides are congruent _____
- 37) The larger segment is congruent to the sum of the segments that comprise it _____
- 38) Two angles that are adjacent and supplementary are called a _____
- 39) If alternate interior angles are congruent, then the lines are parallel _____
- 40) The exterior angle = the sum of the two remote interior angles _____
- 41) A segment connecting the midpoints of two sides of a triangle is called a _____
- 42) The centroid is _____ the distance from the vertex of a triangle to the midpoint of the opposite side

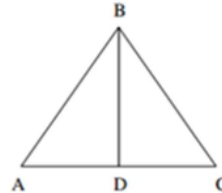
Math 2B Properties and Proofs Review

Free Response - Proof Practice

Complete the following Proofs, by filling in the blanks or by matching, if given options/choices.

1.

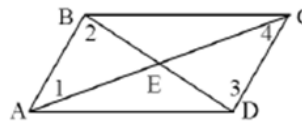
Given: $\triangle ABC$ is isosceles
 \overline{BD} bisects $\angle ABC$
 Prove: $\triangle ABD \cong \triangle CBD$



Statement	Reason
1. $\triangle ABC$ is isosceles	1.
2. $\overline{AB} \cong \overline{CB}$	2.
3. $\angle A \cong \angle C$	3.
4.	4. Given
5.	5. Definition of Angles Bisector
6. $\triangle ABD \cong \triangle CBD$	6.

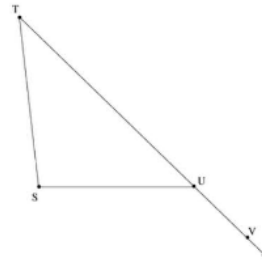
2.

Given: $ABCD$ is a parallelogram
 Proof: \overline{AC} and \overline{BD} bisect each other at E



Statements	Reasons
1. $ABCD$ is a parallelogram	2. Given
3. $\overline{AB} \parallel \overline{DC}$	4.
5. $\angle 1 \cong \angle 4$; $\angle 2 \cong \angle 3$	6.
7. $\overline{AB} \cong \overline{DC}$	8. Opposite sides of a parallelogram are congruent
9. $\triangle _____ \cong \triangle _____$	10.
11. $\overline{AE} \cong \overline{CE}$; $\overline{BE} \cong \overline{DE}$	12.
13.	14.

3. Given: $m\angle T = 40^\circ$
 $m\angle SUV = 145^\circ$
 Prove: $m\angle S = 105^\circ$

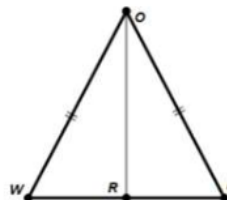


Statements	Reasons
1.	Given
$m\angle SUV = 145^\circ$	2.
3.	Exterior Angles Theorem
4.	Substitution Property of Equality
$m\angle s = 105^\circ$	5.

Possible Choices to fill in the above Proof

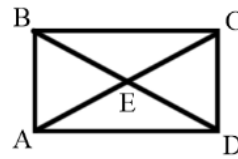
Statements	Reasons
A. $m\angle SUV = 145^\circ$	A. Subtraction Property of Equality
B. $m\angle SUT + m\angle UTS = 180^\circ$	B. Given
C. $145^\circ = m\angle S + 40^\circ$	C. Definition of Linear Pairs
D. $m\angle SUV = m\angle S + m\angle T$	D. Vertical Angles are Congruent
E. $m\angle T = 40^\circ$	E. Substitution Property of Equality

4. Given: $\triangle WOK$ is isosceles
 R is the midpoint of \overline{WK}
 Prove: $\angle OWR \cong \angle OKR$



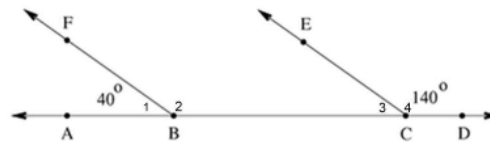
Statement	Reason
1. $\triangle WOK$ is isosceles	1. Given
2.	2. Definition of an isosceles Triangle
3. R is the midpoint of \overline{WK}	3.
4. $\overline{WR} \cong \overline{KR}$	4.
5.	5. Reflexive Property of Congruence
6. $\triangle WRO \cong \triangle KRO$	6.
7. $\angle OWR \cong \angle OKR$	7.

5. Given: $ABCD$ is a rectangle
 $AC = 6x - 15$
 $BD = x + 25$
 Prove: $x = 8$



Statement	Reason
1. $ABCD$ is a rectangle	1. Given
2.	2. The diagonals of a rectangle are congruent
3. $AC = BD$	3.
4. $AC = 6x - 15, BD = x + 25$	4.
5.	5. Substitution
6.	6.
7.	7.
8.	8.

6. Given: Line $ABCD$
 $\angle 1$ and $\angle 4$ are supplementary
 Prove: $\overline{BF} \parallel \overline{CE}$



Statement	Reason
1.	Given
$\angle 1$ and $\angle 4$ are supplementary	2.
3.	Definition of Supplementary \angle 's
$\angle 1$ and $\angle FBC$ are supplementary	4.
5.	Definition of Supplementary \angle 's
$m\angle 4 + m\angle 1 = m\angle 1 + m\angle FBC$	6.
$m\angle 4 = m\angle FBC$	7.
8.	Definition of \cong
$\overline{BF} \parallel \overline{CE}$	9.

Possible Choices to fill in the above Proof

Statements	Reasons
A. $m\angle FBC = 140^\circ$	A. if corresponding \angle 's \cong , then lines \parallel
B. $m\angle 1 + m\angle FBC = 180^\circ$	B. Given
C. $\angle 4 \cong \angle FBC$	C. Definition of Linear Pairs
D. $m\angle DCB = m\angle 1 + m\angle FBC$	D. Vertical Angles are Congruent
E. $m\angle 4 + m\angle 1 = 180^\circ$	E. Substitution Property of Equality
F. $m\angle 1 = m\angle 4$	F. if same side interior \angle 's are supplementary, then lines \parallel
G. \overline{AD}	G. Subtraction Property of Equality

