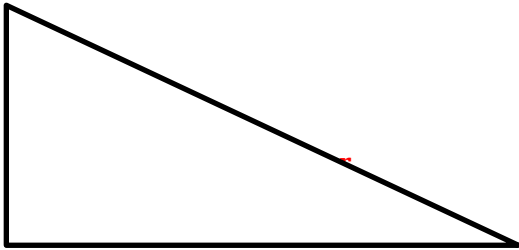


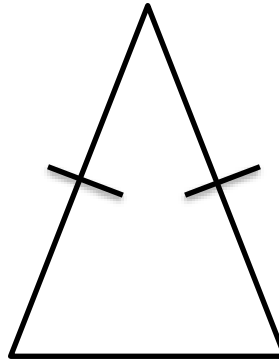
Geometry

5.1 Angles of Triangles

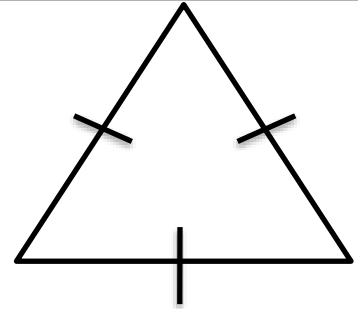
Classify Triangles by sides



No congruent sides

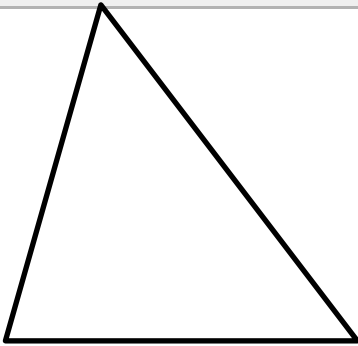


Two congruent sides

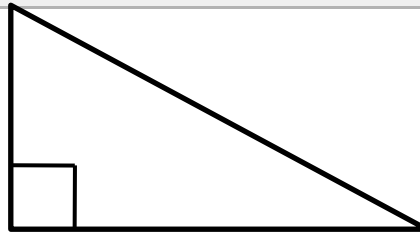


All congruent sides

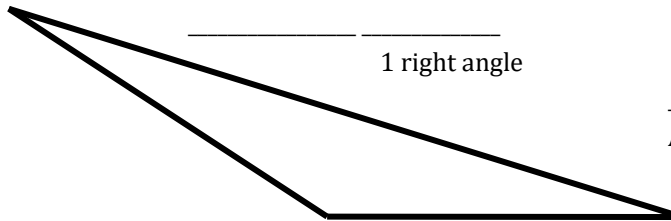
Classify Triangles by Angles



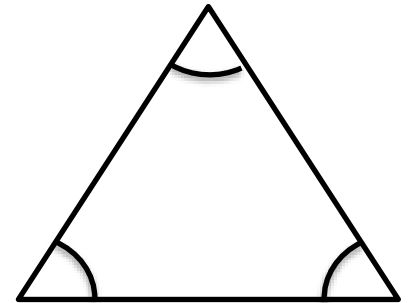
3 acute angles



1 right angle

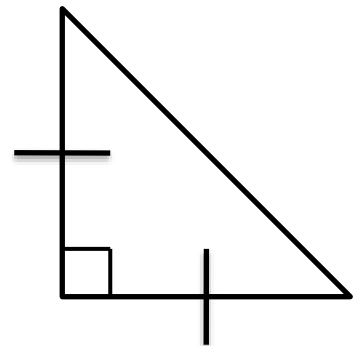
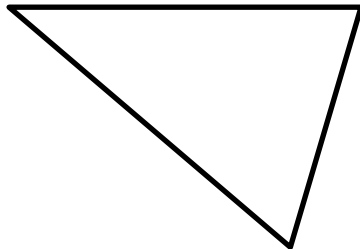


1 obtuse angle

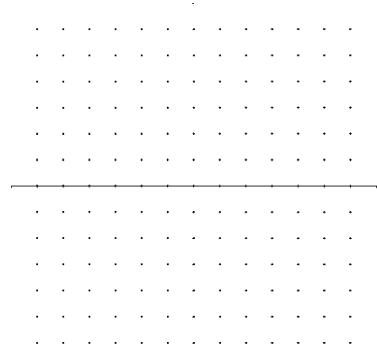


All congruent angles

Classify the following triangle by sides and angles

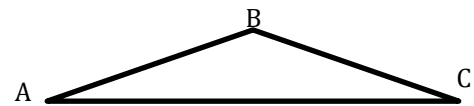


$\triangle ABC$ has vertices $A(0, 0)$, $B(3, 3)$, and $C(-3, 3)$. Classify it by its sides. Then determine if it is a right triangle.



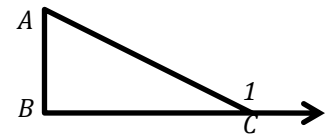
Triangle Sum Theorem

The _____ of the _____ of the interior angles of a triangle is _____.



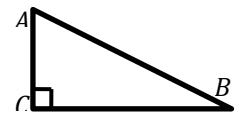
Exterior Angle Theorem

The measure of an _____ angle of a triangle _____ the _____ of the _____.

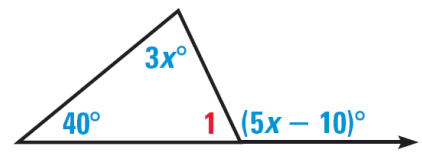


Corollary to the Triangle Sum Theorem

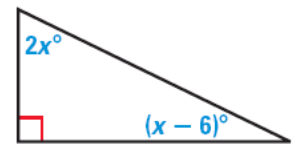
The _____ of a _____ triangle are _____.



Find the measure of $\angle 1$ in the diagram.



Find the measures of the acute angles in the diagram.



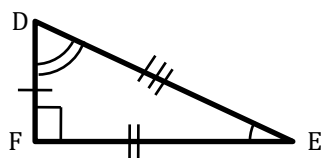
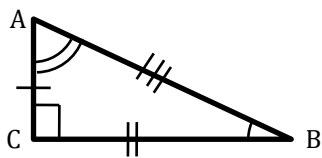
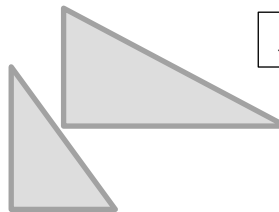
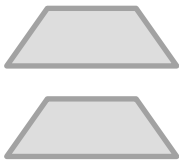
Assignment: 228 #2, 4, 6, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 32, 42, 44, 48, 55, 58, 59 = 20 total

Geometry

5.2 Apply Congruence and Triangles

Congruent (\cong)

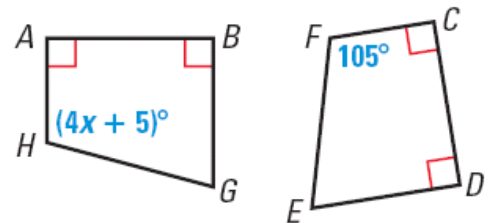
Exactly the same _____ and _____.



- $\triangle ABC \cong \triangle DEF$ $\triangle ABC \cong \triangle EDF$
- $\angle A \cong \angle D$ $\angle B \cong \angle E$ $\angle C \cong \angle F$
- $\overline{AB} \cong \overline{DE}$ $\overline{BC} \cong \overline{EF}$ $\overline{AC} \cong \overline{DF}$

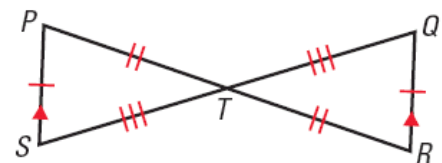
In the diagram, $ABGH \cong CDEF$

Identify all the pairs of congruent corresponding parts



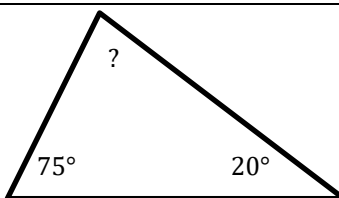
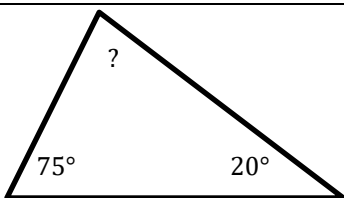
Find the value of x and find $m\angle H$.

Show that $\triangle PTS \cong \triangle RTQ$



Third Angle Theorem

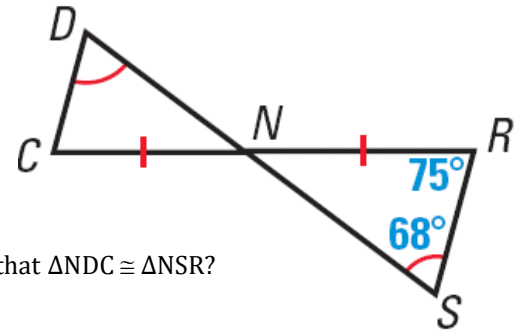
If _____ of one triangle are _____ to _____ of another triangle, then the _____ are _____.



Properties of Congruence of Triangles

Congruence of triangles is _____, _____, and _____.

In the diagram, what is $m\angle DCN$?



By the definition of congruence, what additional information is needed to know that $\triangle DNC \cong \triangle NSR$?

Assignment: 235 #2, 3, 4, 6, 8, 10, 12, 13, 14, 15, 17, 18, 20, 21, 24, 26, 28, 30, 31, 32 = 20 total

Geometry

5.3 Proving Triangle Congruence by SAS

SAS

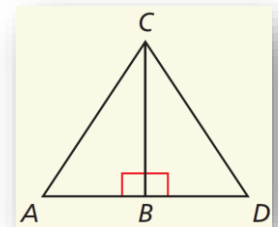


SAS (Side-Angle-Side Congruence Postulate)

If _____ and the _____ angle of one triangle are _____ to two sides and the included angle of another triangle, then the two triangles are _____.

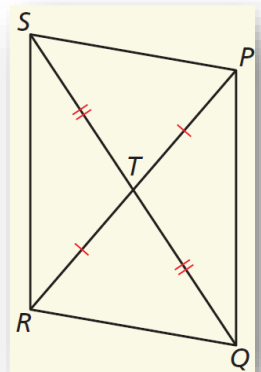
Given: B is the midpoint of \overline{AD} . $\angle ABC$ and $\angle DBC$ are right angles.

Prove: $\triangle ABC \cong \triangle DBC$



Statements	Reasons
1.	1.
2.	2.
3.	3.
4.	4.
5.	5.

What can you conclude about $\triangle PTS$ and $\triangle RTQ$? Explain.

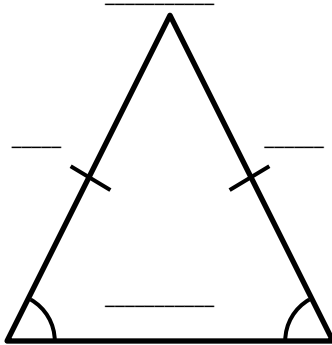


Assignment: 241 #2, 4, 6, 7, 8, 10, 12, 17, 18, 19, 23, 24, 27, 29, 31 = 15 total

Geometry

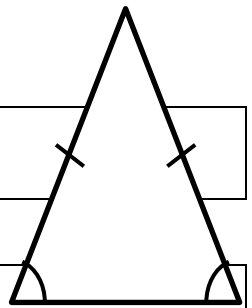
5.4 Equilateral and Isosceles Triangles

Parts of an Isosceles Triangle



Base Angles Theorem

If _____ sides of a _____ are _____, then the _____ opposite them are _____.



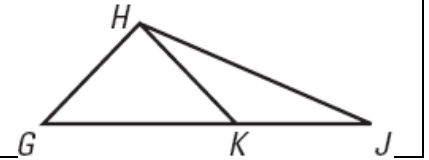
Converse of Base Angles Theorem

If _____ angles of a _____ are _____, then the _____ sides opposite them are _____.

Complete the statement

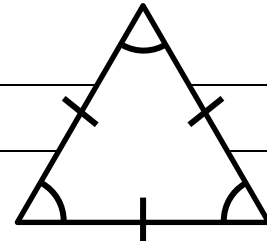
If $\overline{HG} \cong \overline{HK}$, then $\angle _____ \cong \angle _____$.

If $\angle KHJ \cong \angle KJH$, then $_____ \cong _____$.



Corollary to the Base Angles Theorem

If a triangle is _____, then it is _____.

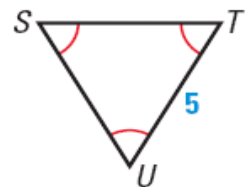


Corollary to the Converse of Base Angles Theorem

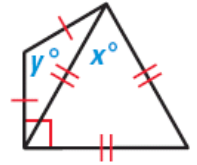
If a triangle is _____, then it is _____.

Find $\angle S$

Find $m\angle T$



Find the values of x and y



Assignment: 248 #2, 4, 6, 8, 12, 14, 16, 18, 20, 21, 22, 24, 27, 28, 30, 36, 38, 39, 40, 43 = 20 total

Geometry

5.5 Proving Triangles Congruent by SSS

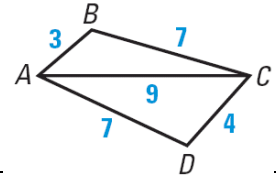
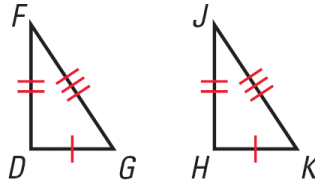
SSS (Side-Side-Side Congruence Postulate)

If _____ of one triangle are _____ to _____ of another triangle, then the _____ are _____.

True or False

$\triangle DFG \cong \triangle HJK$

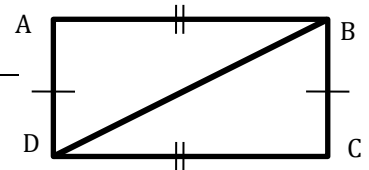
$\triangle ACB \cong \triangle CAD$



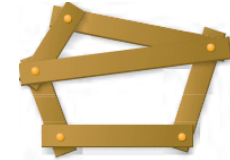
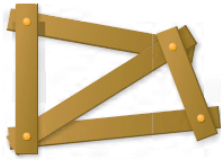
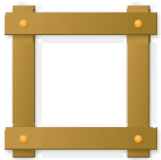
Given: $\overline{AB} \cong \overline{DC}$; $\overline{AD} \cong \overline{BC}$

Prove: $\triangle ABD \cong \triangle CDB$

Statements	Reasons
1.	1.
2.	2.
3.	3.



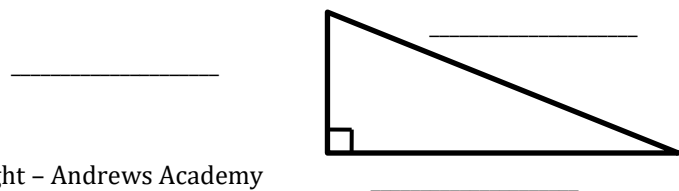
Determine whether the figure is stable.



HL

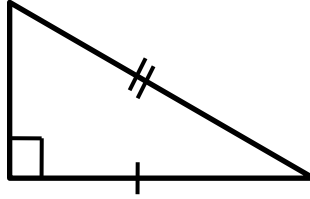
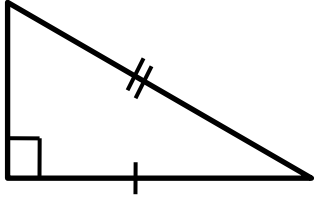
Right triangles are special

If we know two sides are congruent we can use the Pythagorean Theorem (ch 7) to show that the third sides are congruent



HL (Hypotenuse-Leg Congruence Theorem)

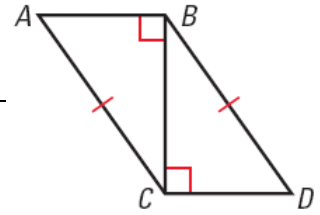
If the _____ and a _____ of a _____ triangle are congruent to the _____ and a _____ of another _____ triangle, then the two triangles are _____.



Given: $\angle ABC$ and $\angle BCD$ are rt \angle s; $\overline{AC} \cong \overline{BD}$

Prove: $\triangle ACB \cong \triangle DBC$

Statements	Reasons
1.	1.
2.	2.
3.	3.
4.	4.

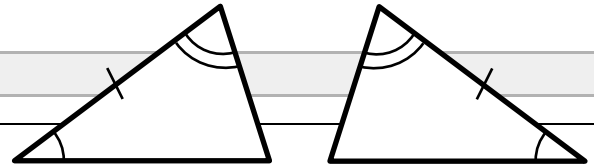


Assignment: 256 #1, 2, 3, 4, 6, 7, 8, 10, 12, 14, 18, 20, 22, 26, 28, 31, 32, 34, 35, 36 = 20 total

Geometry

5.6 Proving Triangles Congruent by ASA and AAS

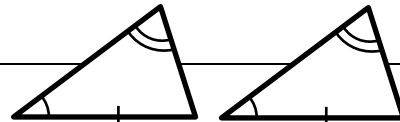
ASA and AAS



ASA (_____ Congruence Postulate)

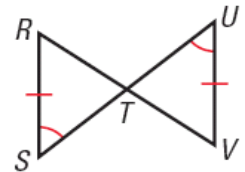
If two angles and the included side of one triangle are congruent to two angles and the included side of another triangle, then the two triangles are congruent

AAS (_____ Congruence Theorem)



If two angles and a non-included side of one triangle are congruent to two angles and a non-included side of another triangle, then the two triangles are congruent

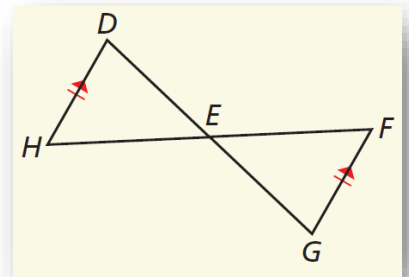
In the diagram, what postulate or theorem can you use to prove that $\triangle RST \cong \triangle VUT$?



Given: $\overline{DH} \parallel \overline{GF}$, $\overline{DH} \cong \overline{GF}$

Prove: $\triangle DEH \cong \triangle GEF$

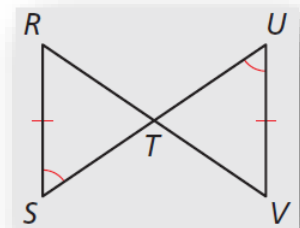
Statements	Reasons
1.	1.
2.	2.
3.	3.



Given: $\overline{RS} \cong \overline{VU}$, $\angle S \cong \angle U$

Prove: $\triangle RST \cong \triangle VUT$

Statements	Reasons
1.	1.
2.	2.
3.	3.



Assignment: 264 #2, 4, 6, 8, 12, 14, 16, 22, 24, 28, 35, 38, 39, 40, 41 = 15 total

Geometry

5.7 Using Congruent Triangles

Definition of Congruent Triangles

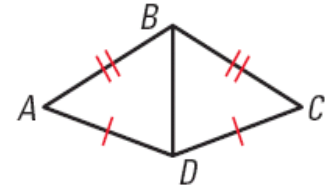
- By the definition of congruent triangles, we know that the _____

CPCTC

C _____ **P** _____ of **C** _____ **T** _____ are **C** _____

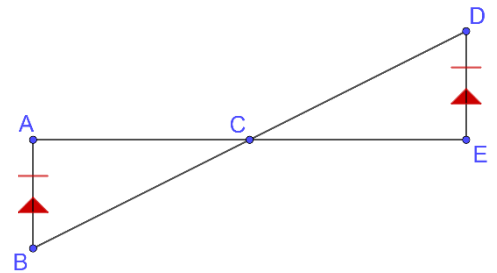
- To show that parts of triangles are congruent
 - First show that the _____
 - _____, _____, _____, _____, _____
 - Second say that the _____ parts are congruent using
 - _____ or _____

Write a plan for a proof to show that $\angle A \cong \angle C$



Given: $\overline{AB} \cong \overline{DE}$, $\overline{AB} \parallel \overline{DE}$

Prove: C is the midpoint of \overline{AE}



Assignment: 271 #2, 3, 4, 6, 8, 10, 13, 17, 19, 20, 23, 25, 26, 27, 28 = 15 total

Geometry

5.8 Coordinate Proofs

Coordinate Proof

Place geometric _____ in a _____ plane (_____)

When _____ are used for the _____, the result is true for _____ figures of that type

Use formulas to prove things

- _____ formula

$$Midpt = \left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2} \right)$$

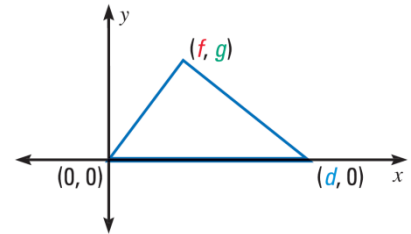
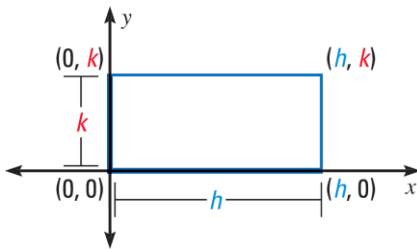
- _____ formula

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

- _____ formula

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

1. Use the _____ as a _____ or _____.
 2. Place at least one _____ of the polygon on an _____.
 3. Usually keep the _____ within the _____.
 4. Use _____ that make _____ as _____ as possible.
- You will prove things by _____ things like _____, _____, and _____



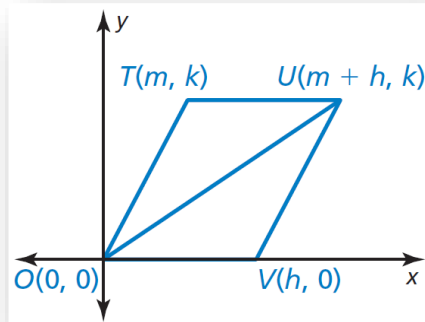
Place a **square** in a coordinate plane so that it is convenient for finding side lengths. Assign coordinates.

Place a **right triangle** in a coordinate plane so that it is convenient for finding side lengths. Assign coordinates.

Place an isosceles triangle in a coordinate plane with vertices $P(-2a, 0)$, $Q(0, a)$, and $R(2a, 0)$. Then find the side lengths and the coordinates of the midpoint of each side.

Given: Coordinates of vertices of quadrilateral $OTUV$

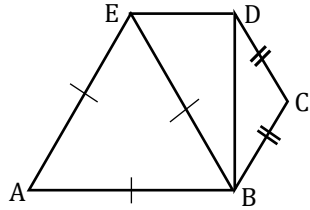
Prove: $\angle TOU \cong \angle VUO$



Assignment: 277 #2, 4, 6, 8, 11, 12, 15, 16, 22, 23, 25, 26, 29, 32, 33 = 15 total

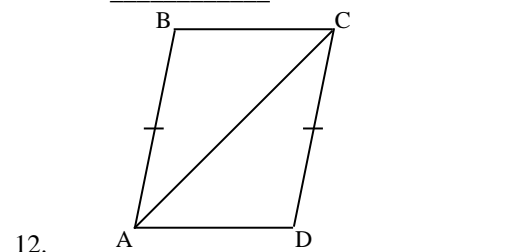
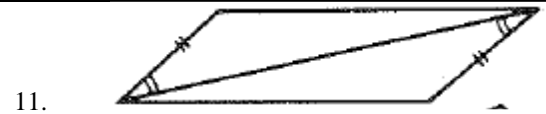
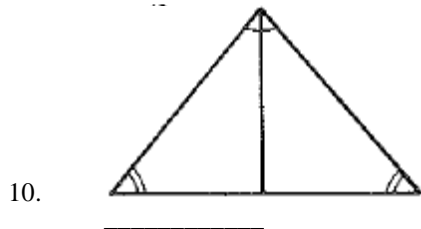
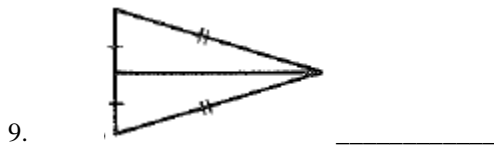
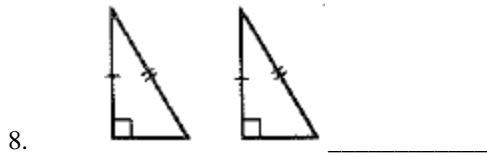
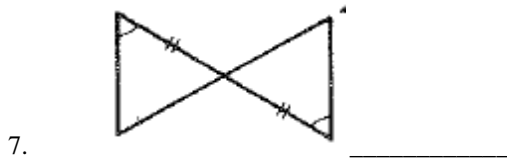
Geometry Review Chapter 5

Identify a triangle in the figure that appear to fit the given description.

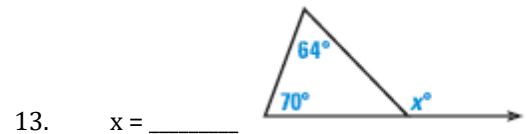


1. acute _____
2. obtuse _____
3. right _____
4. scalene _____
5. isosceles _____
6. equilateral _____

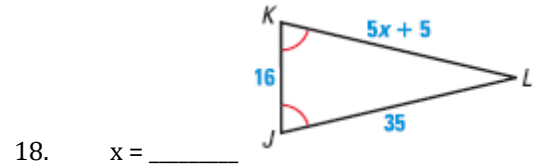
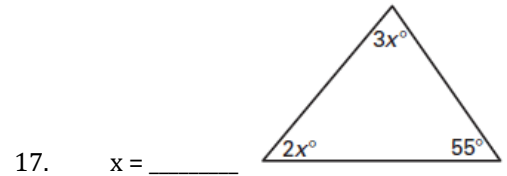
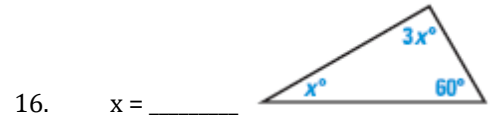
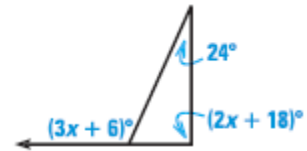
If it is possible to prove that the triangles are congruent, tell which congruence postulate or theorem you would use.



Find the value of x.



14. $x =$ _____

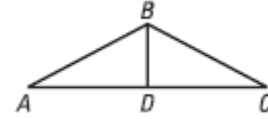


Place the figure in a coordinate plane in a convenient way. Give the coordinates of each vertex.

19. Square with side length a .

20. Parallelogram with base b and height h .

Write a proof.

GIVEN ▶ $\triangle ABC$ is isosceles with base \overline{AC} , \overline{BD} bisects $\angle B$.**PROVE** ▶ $\triangle ABD \cong \triangle CBD$ 

21.

Answers

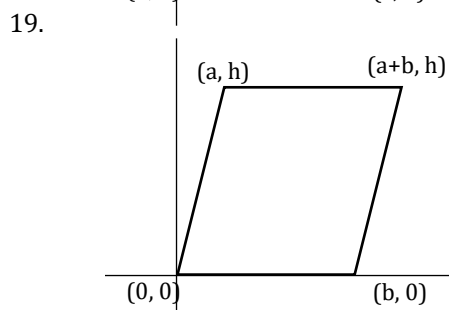
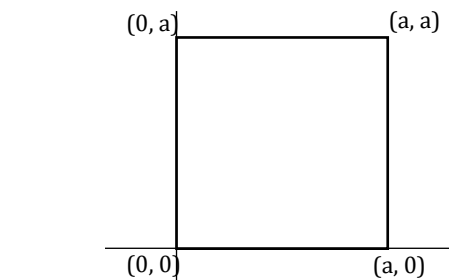
1. $\triangle ABE$
2. $\triangle BCD$
3. $\triangle BDE$
4. $\triangle BDE$
5. $\triangle BCD$
6. $\triangle ABE$
7. ASA
8. HL
9. SSS
10. AAS
11. SAS
12. Not Possible
13. 134
14. 36
15. 18
16. 30
17. 25
18. 6

$\overline{AB} \cong \overline{BC}$ (Definition of isosceles triangle)

$\angle ABD \cong \angle CBD$ (Definition of angle bisector)

$\overline{BD} \cong \overline{BD}$ (Reflexive)

$\triangle ABD \cong \triangle CBD$ (SAS)



20.

21. $\triangle ABC$ is isosceles, \overline{BD} bisects $\angle B$
(Given)