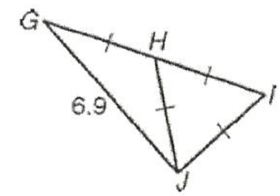
(KEY)

Card 1

Classify each triangle by its side lengths.
(*Note:* Some triangles may belong to more than one class.)



$\triangle GIJ$ Scalene

$\triangle HIJ$ Equilateral

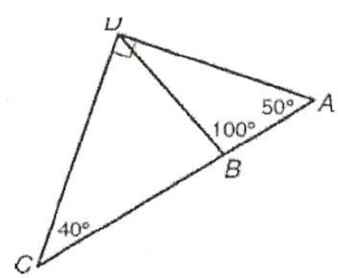
[Equiangular / Acute] by angles

Isosceles

$\triangle GHJ$ Isosceles

Card 2

Classify each triangle by its angle measures.
(*Note:* Some triangles may belong to more than one class.)



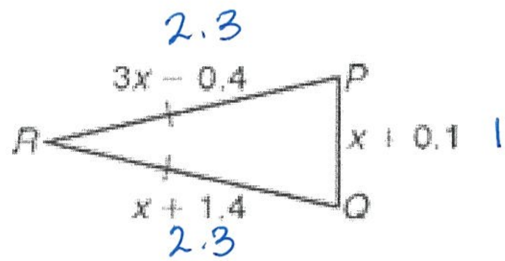
$\triangle ABD$ Obtuse

$\triangle ADC$ Right

$\triangle BCD$ Acute

Card 3

Find the side lengths in the triangle.



$3x-0.4=x+1.4$ $\quad$ $3(0.9)-0.4=2.3=RP$

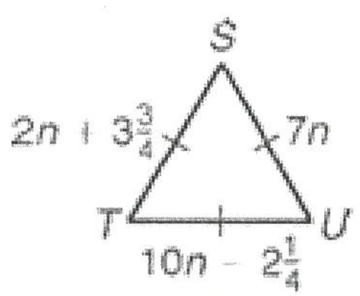
$3x=x+1.8$ $\quad$ $0.9+1.4=2.3=RQ$

$2x=1.8$ $\quad$ $0.9+0.1=1=PQ$

$x=0.9$

Card 4

Find the side lengths in the triangle.



$ST=2(3/4)+3\,3/4=5\,1/4$

$SU=7(3/4)=5\,1/4$

$TU=10(3/4)-2\,1/4=5\,1/4$

$2n+3\frac{3}{4}=7n$

$3\frac{3}{4}=5n$

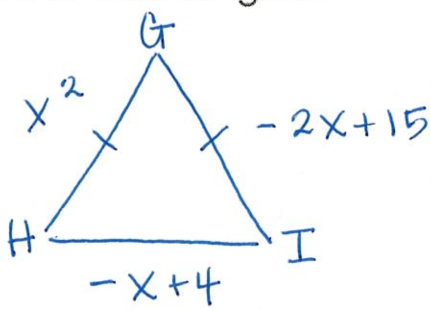
$\frac{15}{4}=5n$

$15=20n$

$n=3/4$

Card 5

Isosceles $\triangle GHI$ has $\overline{GH} \cong \overline{GI}$. $GH = x^2$, $GI = -2x + 15$, and $HI = -x + 4$.
Find the side lengths.



$$x^2 = -2x + 15$$
$$x^2 + 2x - 15 = 0$$
$$(x+5)(x-3) = 0$$
$$x+5=0 \quad x-3=0$$
$$x=-5 \quad x=3$$

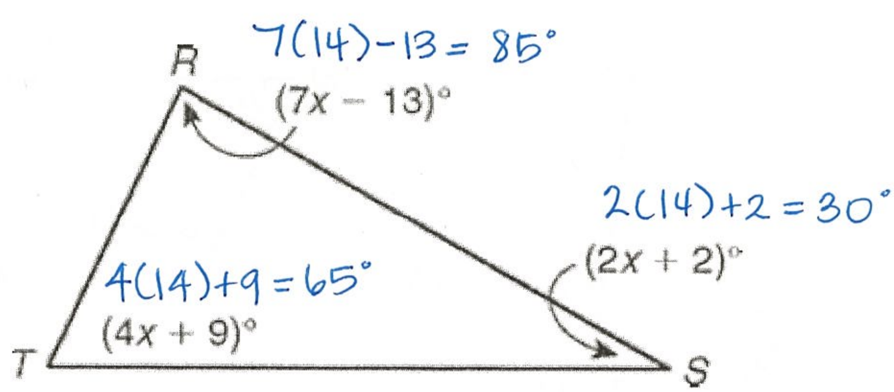
$GH = (-5)^2 = 25$ OR $(3)^2 = 9$

$GI = -2(-5)+15 = 25$ OR $-2(3)+15 = 9$

$HI = -(-5)+4 = 9$ OR $-(3)+4 = 1$

Card 6

Find the value of x, then find the measure of each angle.

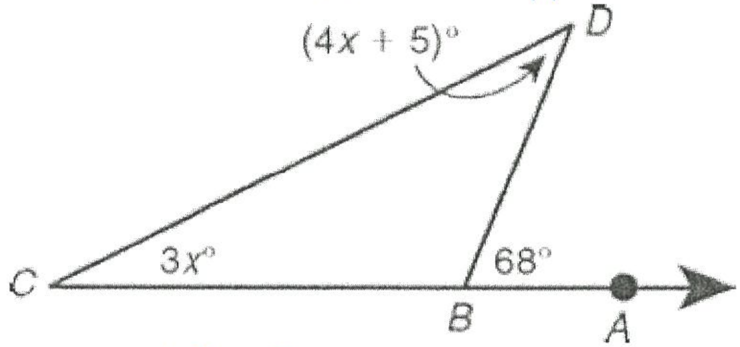


$$7x - 13 + 4x + 9 + 2x + 2 = 180$$
$$13x - 2 = 180$$
$$13x = 182$$
$$x = 14$$

Card 7

Find the m<D.

$4(9)+5=41°$



$68=3x+4x+5$

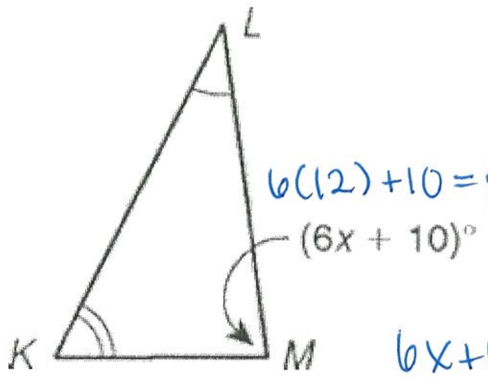
$68=7x+5$

$63=7x$

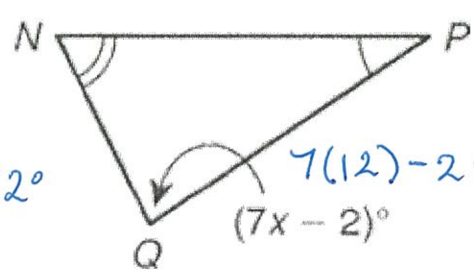
$x=9$

Card 8

Find the m<M and m<Q.



$6(12)+10=82°$



$7(12)-2=82°$

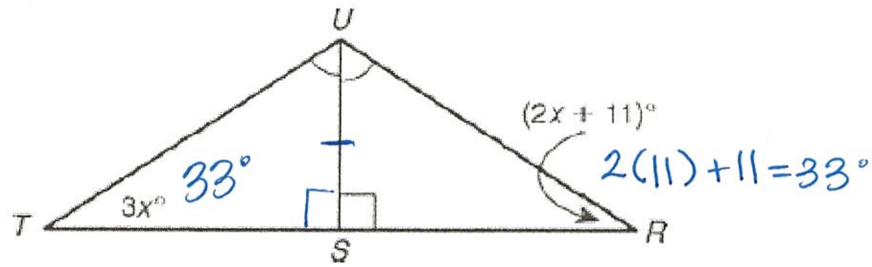
$6x+10=7x-2$ (3rd <s Thm)

$10=x-2$

$12=x$

Card 9

Find the m<T and m<R.



The triangles are $\cong$ by ASA.

so: $3x = 2x + 11$

$x = 11$

Card 10

Given: $\triangle CDE \cong \triangle HIJ$, $DE = 9x$, and $IJ = 7x + 3$. Find x and DE.

$9x = 7x + 3$ $\quad$ $DE = 9\left(\frac{3}{2}\right) = \frac{27}{2} = 13.5$

$2x = 3$

$x = \frac{3}{2}$

Card 11

Given: $\triangle CDE \cong \triangle HIJ$, $m\angle D = (5y + 1)°$, and $m\angle I = (6y - 25)°$.
Find y and $m\angle D$.

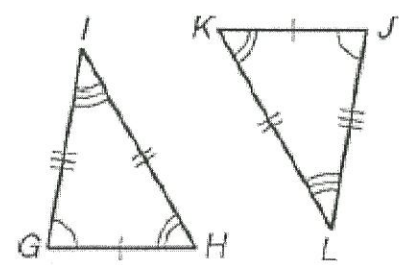
$$5y + 1 = 6y - 25$$
$$1 = y - 25$$
$$26 = y$$

$$m\angle D = 5(26) + 1 = 131°$$

Card 12

Name the three pairs of corresponding sides.

Name the three pairs of corresponding angles.

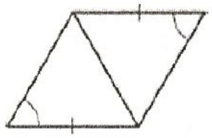


$\overline{GH} \cong \overline{JK}$
$\overline{HI} \cong \overline{KL}$
$\overline{GI} \cong \overline{JL}$

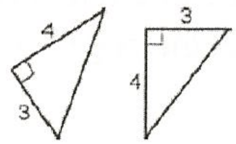
$\angle I \cong \angle L$
$\angle G \cong \angle J$
$\angle H \cong \angle K$

Card 13

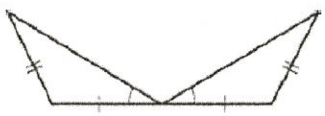
Write which of the **SSS** or **SAS** postulates, if either, can be used to prove the triangles congruent. If no triangles can be proved congruent, write *neither*.



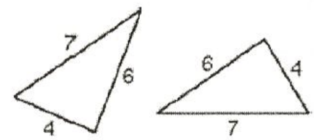
1. neither



2. SAS



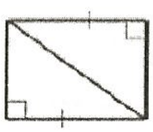
3. neither



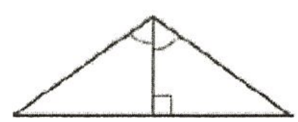
4. SSS

Card 14

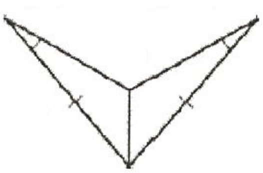
Write which postulate, if any, can be used to prove the pair of triangles congruent.



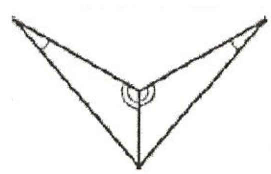
neither



ASA



neither

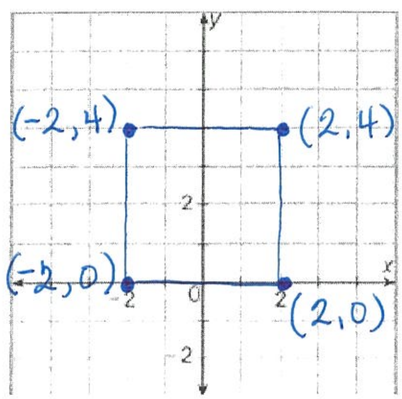


AAS

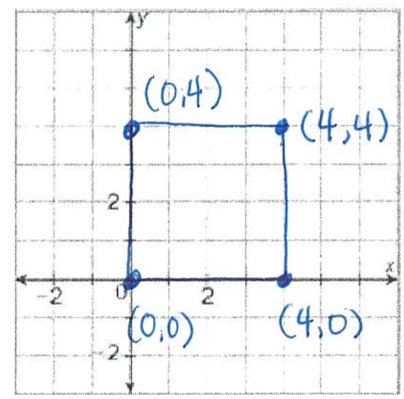
Card 15

Draw a square with a side length of 4 units in the coordinate plane. Label the coordinates of each vertex.

1. Center one side at the origin (0, 0).

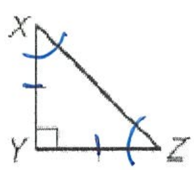


2. Use the origin as a corner.



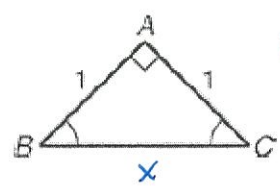
Card 16

Find each value.



$180 - 90 = \frac{90}{2} = 45°$

m∠X = 45°



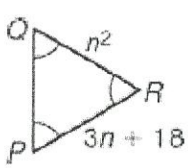
$1^2 + 1^2 = x^2$

$1 + 1 = x^2$

$2 = x^2$

$x = \sqrt{2}$

BC = $\sqrt{2}$



$n^2 = 3n + 18$

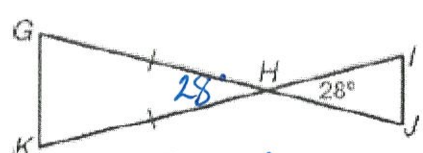
$n^2 - 3n - 18 = 0$

$(n-6)(n+3) = 0$

$n - 6 = 0 \quad n + 3 = 0$

$n = 6 \quad n = -3$

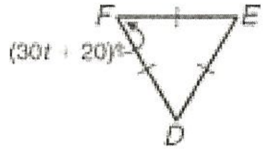
PQ = 9 or 36



$180 - 28 = \frac{152}{2} = 76$

m∠K = 76°

Card 17

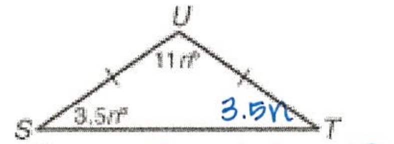


$30t+20=60$

$30t=40$

$t=\frac{40}{30}=\frac{4}{3}$

$t =$ 4/3

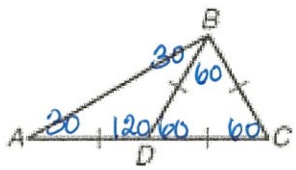


$11n+3.5n+3.5n=180$

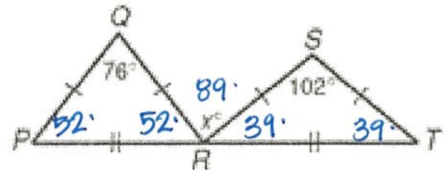
$18n=180$

$n=10$

$n =$ 10



m∠A = 30°



$x =$ 89

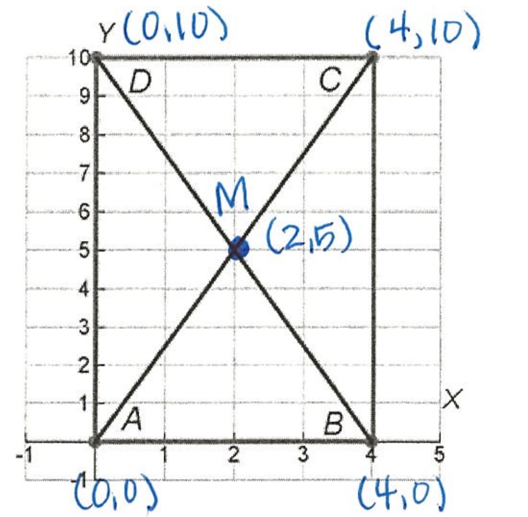
Card 18

$M\left(\frac{0+4}{2}, \frac{10+0}{2}\right)=(2,5)$

Write a coordinate proof.

Given: Rectangle *ABCD* with *A*(0, 0), *B*(4, 0), *C*(4, 10), and *D*(0, 10)

Prove: The diagonals bisect each other. (BOTH diagonals cut in half)



$DM=\sqrt{(0-2)^2+(10-5)^2}=\sqrt{(-2)^2+(5)^2}=\sqrt{29}$

$BM=\sqrt{(4-2)^2+(0-5)^2}=\sqrt{(2)^2+(-5)^2}=\sqrt{29}$

$CM=\sqrt{(4-2)^2+(10-5)^2}=\sqrt{(2)^2+(5)^2}=\sqrt{29}$

$AM=\sqrt{(0-2)^2+(0-5)^2}=\sqrt{(-2)^2+(-5)^2}=\sqrt{29}$

So, $DM=BM \rightarrow \overline{DM}\cong\overline{BM}$

$CM=AM \rightarrow \overline{CM}\cong\overline{AM}$

∴ The diagonals bisect