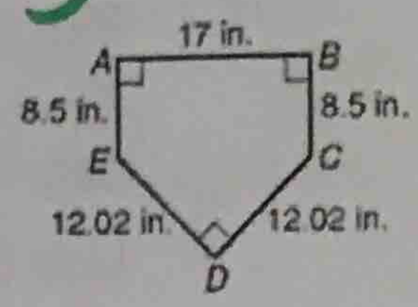
Geometry
Congruent Triangles Recap

Name Key

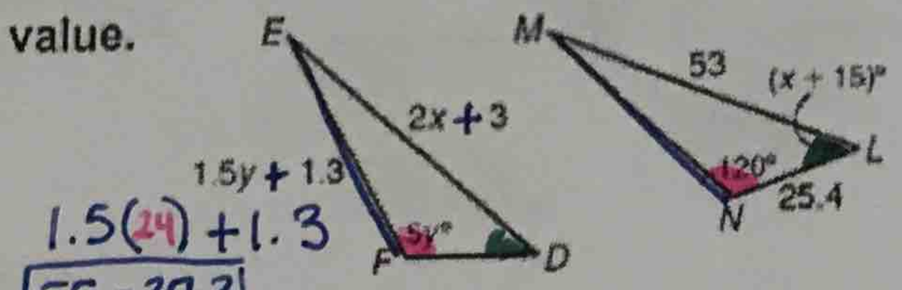
ABCDE ≅ PQRST

In baseball, home plate is a pentagon. Pentagon *ABCDE* is a diagram of a regulation home plate. The baseball rules are very specific about the exact dimensions of this pentagon so that every home plate is congruent to every other home plate. If pentagon *PQRST* is another home plate, identify each congruent corresponding part.



1. $\angle S \cong$ $\angle D$
2. $\angle B \cong$ $\angle Q$
3. $\overline{EA} \cong$ $\overline{TP}$
4. $\angle E \cong$ $\angle T$
5. $\overline{PQ} \cong$ $\overline{AB}$
6. $\overline{TS} \cong$ $\overline{DE}$

Given: $\triangle DEF \cong \triangle LMN$. Find each value.



7. $m\angle L =$ 40°
8. $EF =$ 37.3

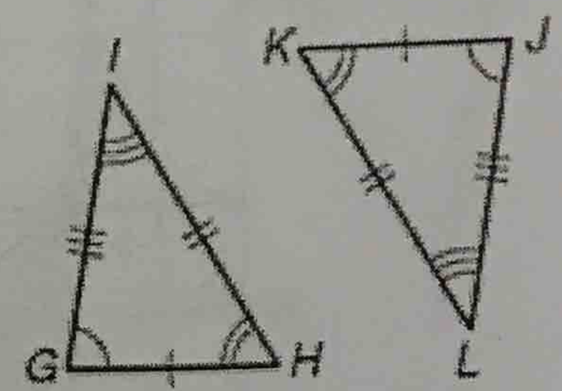
1.5(24) + 1.3
EF = 37.3

ED ≅ ML
2x + 3 = 53
2x = 50
x = 25

∠F ≅ ∠N
5y = 120°
y = 24

∠L = 25 + 15
m∠L = 40°

9. For the given triangles:



a. Write a congruence statement. order matters!

$\triangle GHI \cong \triangle JKL$

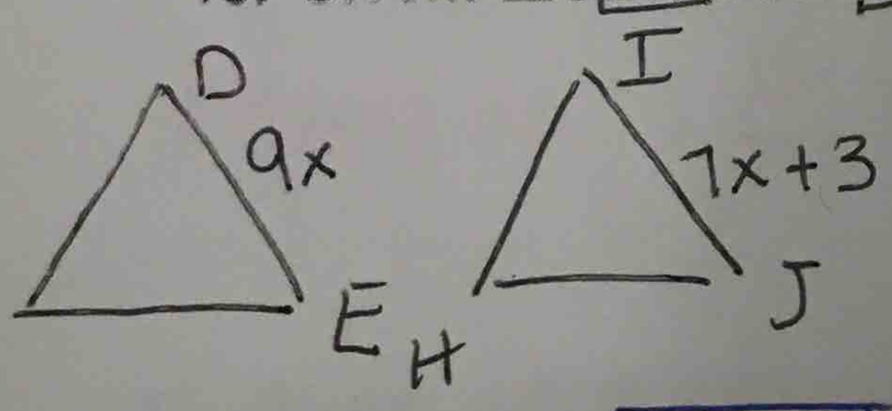
b. Name the three pairs of congruent sides.

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

c. Name the three congruent angles.

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

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



DE ≅ IJ
9x = 7x + 3
2x = 3
x = 1.5

DE = 9(1.5)
DE = 13.5

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

∠D ≅ ∠I
5y + 1 = 6y − 25
26 = y

∠D = 5(26) + 1
∠D = 131°

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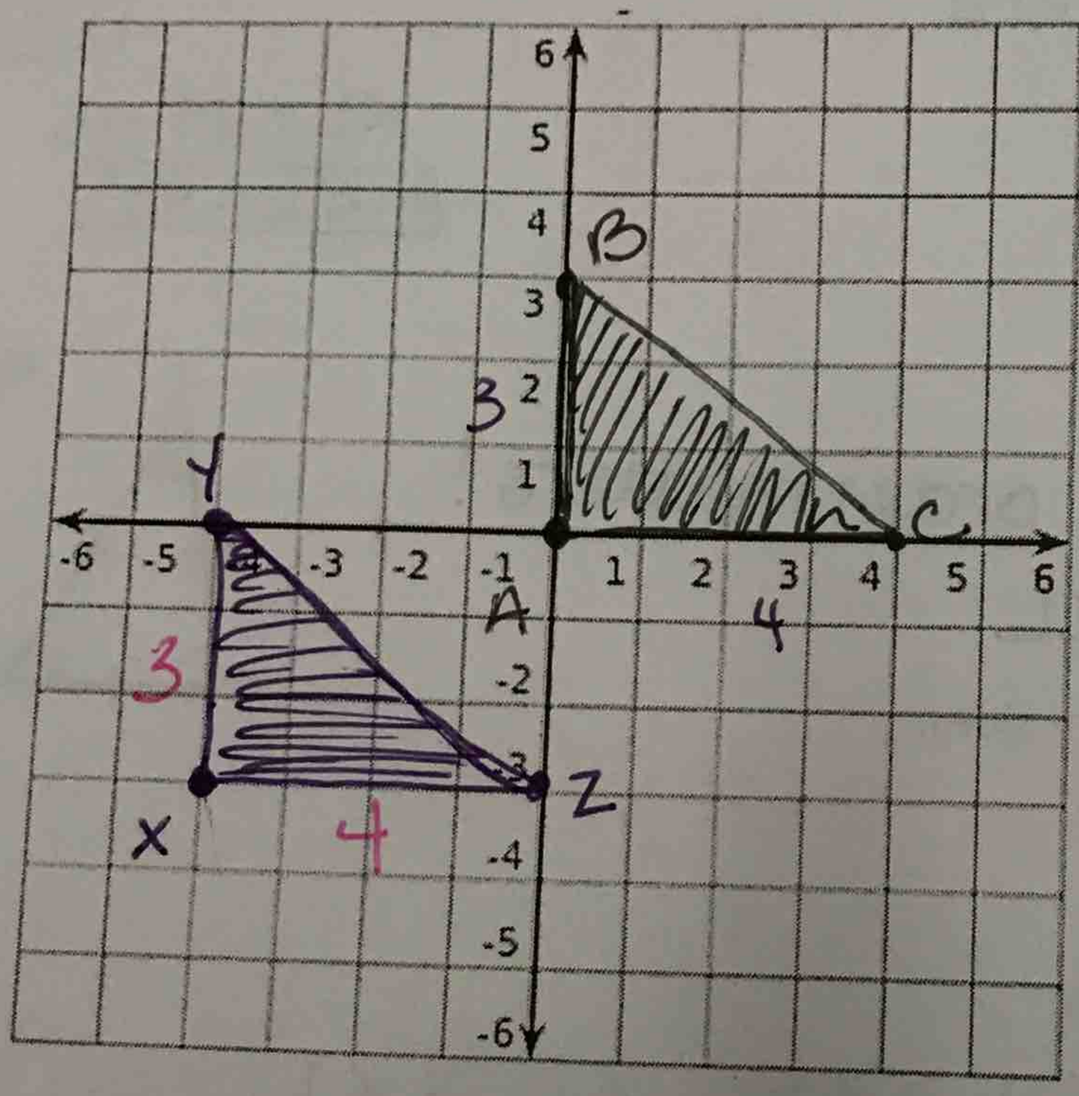
12. Plot these points: $A(0, 0)$, $B(0, 3)$, $C(4, 0)$, $X(-4, -3)$, $Y(-4, 0)$, $Z(0, -3)$. Draw segments to make $\triangle ABC$ and $\triangle XYZ$.

Use the Distance Formula to find the length of each side.

AB = 3 BC = 5 AC = 4

XY = 3 YZ = 5 XZ = 4



must show work (For all non vertical + horizontal)

AB = 3 (just count)

BC:

$3^2 + 4^2 = BC^2$

$9 + 16 = BC^2$

$\sqrt{25} = \sqrt{BC^2}$

$5 = BC$

AC = 4 (just count)

XY = 3 (just count)

YZ:

$3^2 + 4^2 = YZ^2$

$25 = YZ^2$

$\sqrt{25} = YZ$

$5 = YZ$

XZ = 4 (just count)