# UNIT 1 REVIEW GUIDE

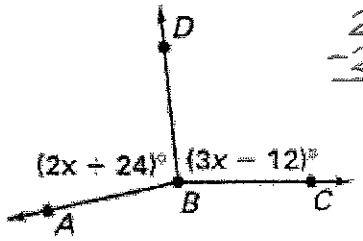
Name: Key

Period: _____ Date: _____

set =

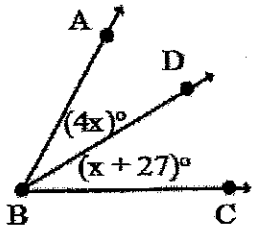
**For Questions 1 - 2, BD bisects ∠ABC. Find the value of x.** Bisected angles are congruent

1.




$2x+24 = 3x-12$
$-2x \quad -2x$
$24 = x-12$
$+12 \quad +12$
$36 = x$

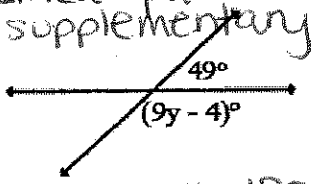
2.




$4x = x+27$
$-x \quad -x$
$\frac{3x}{3} = \frac{27}{3}$
$x = 9$

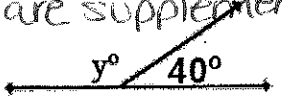
**Solve for the missing variable:**

3. Linear pairs are supplementary



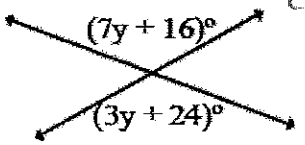

$49 + 9y - 4 = 180$
$9y + 45 = 180$
$-45 \quad -45$
$\frac{9y}{9} = \frac{135}{9}$
$y = 15$

4. linear pairs are supplementary




$y + 40 = 180$
$-40 \quad -40$
$y = 140$

5. vertical angles are congruent




$7y + 16 = 3y + 24$
$-3y \quad -3y$
$4y + 16 = 24$
$-16 \quad -16$
$\frac{4y}{4} = \frac{8}{4}$
$y = 2$

. Identify the type of angle:

a. ∠3 and ∠5 vertical angles

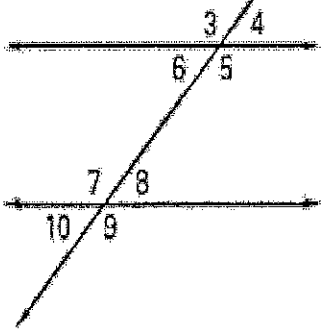
b. ∠3 and ∠9 alternate exterior angles

c. ∠5 and ∠8 consecutive interior angles

d. ∠8 and ∠6 alternate interior angles

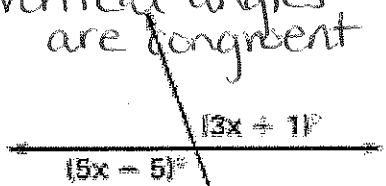
e. ∠7 and ∠8 linear pairs

f. ∠3 and ∠7 corresponding angles



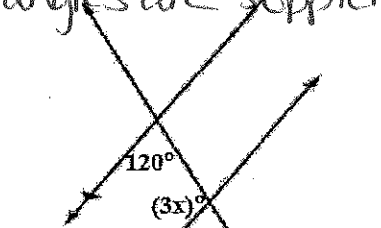

**Solve for the missing variable:**

7. vertical angles are congruent



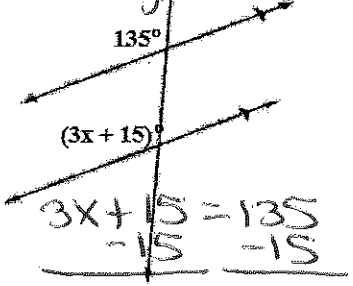

$5x - 5 = 3x + 1$
$-3x \quad -3x$
$2x - 5 = 1$
$+5 \quad +5$
$\frac{2x}{2} = \frac{6}{2}$
$x = 3$

8. consecutive interior angles are supplementary



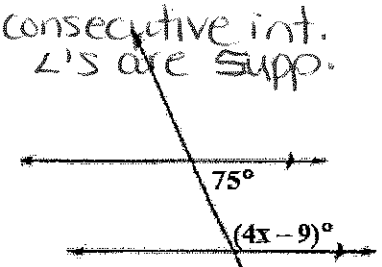

$120 + 3x = 180$
$-120 \quad -120$
$\frac{3x}{3} = \frac{60}{3}$
$x = 20$

9. corresponding angles are congruent



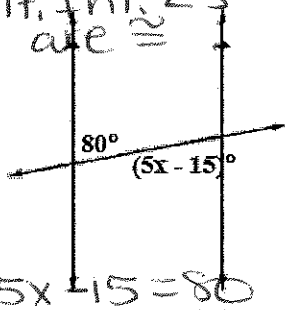

$3x + 15 = 135$
$-15 \quad -15$
$\frac{3x}{3} = \frac{120}{3}$
$x = 40$

10. consecutive int. ∠'s are supp.



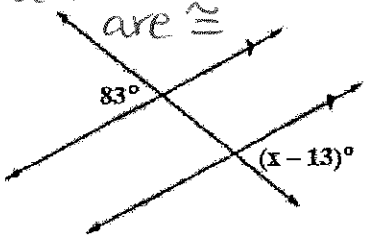

$4x-9+75=180$
$4x+66=180$
$-66 \quad -66$
$\frac{4x}{4}=\frac{114}{4}$
$x=28.5$

11. Alt. Int. ∠'s are ≅



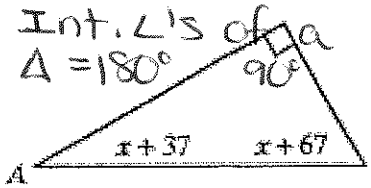

$5x-15=80$
$+15 \quad +15$
$\frac{5x}{5}=\frac{95}{5}$
$x=19$

12. alt. ext ∠'s are ≅



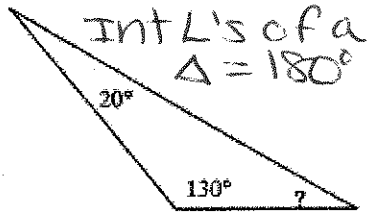

$x-13=83$
$+13 \quad +13$
$x=96$

13. Int. ∠'s of a △ = 180°



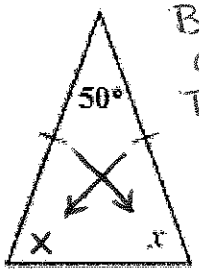

$x+37+x+67+90=180$
$2x+194=180$
$-194 \quad -194$
$\frac{2x}{2}=\frac{-14}{2}$
$x=-7$

14. Int ∠'s of a △ = 180°



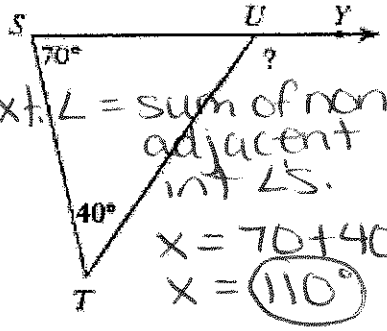

$20+130+x=180$
$150+x=180$
$-150 \quad -150$
$x=30$

15. Base ∠'s are ≅. Then int ∠'s of a △ = 180°



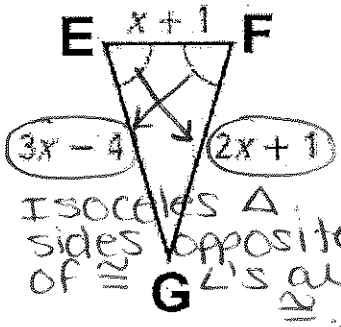

$x+x+50=180$
$2x+50=180$
$-50 \quad -50$
$\frac{2x}{2}=\frac{130}{2}$
$x=65$

16.



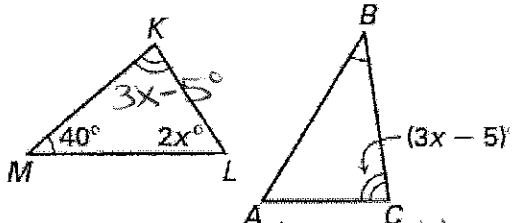

ext ∠ = sum of non-adjacent int ∠s.
$x=70+40$
$x=110°$

17.




Isosceles △ sides opposite of ≅ ∠'s are ≅
$3x-4=2x+1$
$-2x \quad -2x$
$x-4=1$
$+4 \quad +4$
$x=5$

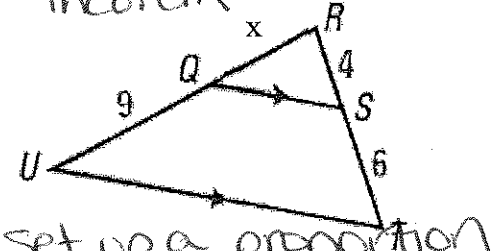
18.




corresponding ∠s are congruent. Then int ∠'s of a △ = 180°
$3x-5+40+2x=180$
$5x+35=180$
$-35 \quad -35$
$\frac{5x}{5}=\frac{145}{5}$
$x=29$

△ Proportionality Theorem

19.




Set up a proportion cross multiply and solve for x.

$\frac{x}{9}=\frac{4}{6}$
$\frac{6x}{6}=\frac{36}{6}$
$x=6$

label these first

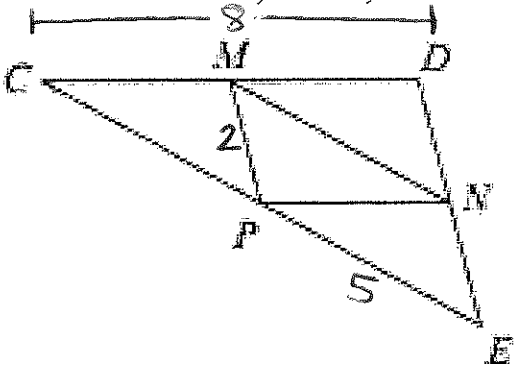
20. MP, MN, and PN are midsegments of ΔCDE. MP = 2, CD = 8, and PE = 5

PN // CD

MN = 5

DE = 4

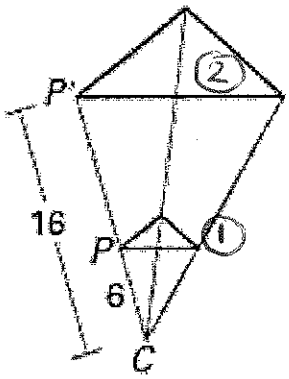
PN = 4




midsegment theorem → midsegment is parallel (//) to the 3rd side and is ½ the length.

21. Identify the dilation and the scale factor of the following:

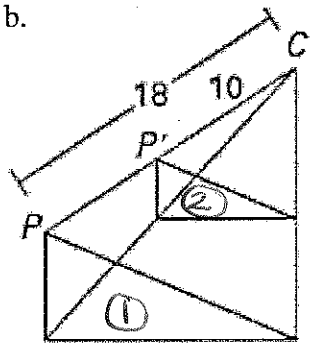
a.




Dilation: enlargement

Scale Factor: $k = \frac{P'}{P} = \frac{16}{6} = \frac{8}{3}$

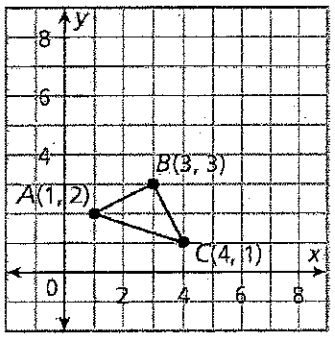
b.




Dilation: reduction

Scale Factor: $k = \frac{P'}{P} = \frac{10}{18} = \frac{5}{9}$

22. Given the following has a scale factor of k = 2, what would the new coordinates be?



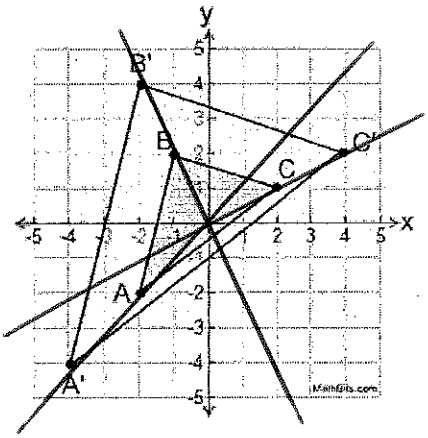

A' (2, 4)

B' (6, 6)

C' (8, 2)

multiply scale factor by each coordinate.

25. Find the Center of Dilation:

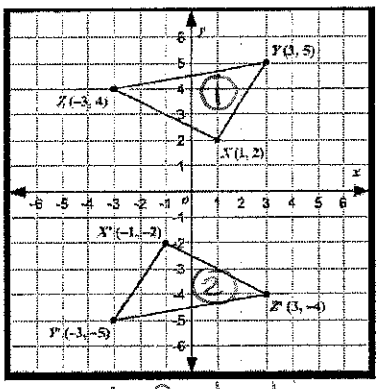



(0, 0)

Draw a line through corresponding angles and see where they intersect.

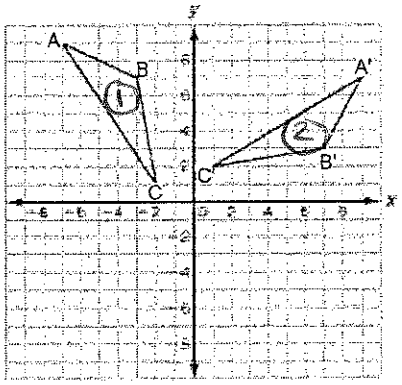
23. Identify the transformation that takes place. Be Specific… for example, what type of reflection, what type of transformation (left 2 up 1 for example), what type of rotation?

a.



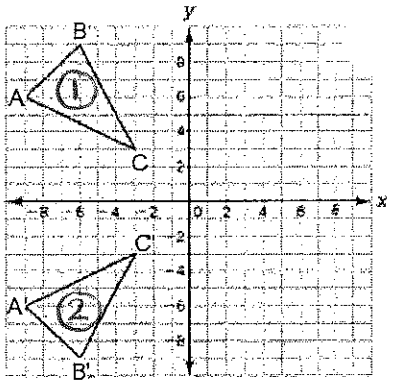

180° Rotation

b.



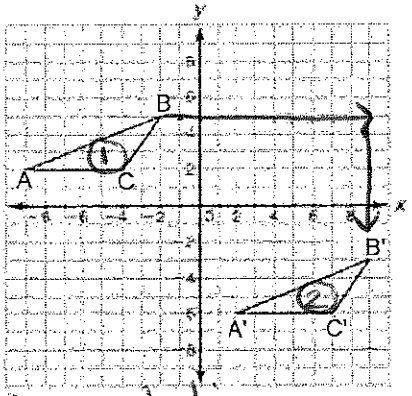

90° Rotation clockwise

c.



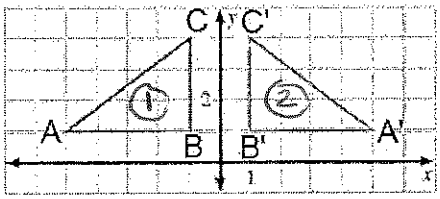

Reflection over the x-axis

d.




Translation Right 11 Down 8

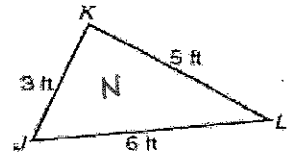
e.

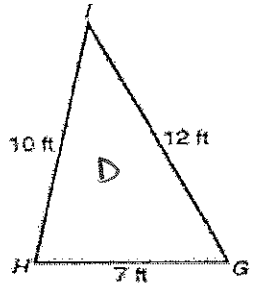



Reflection over the y-axis.

24. Are the triangles below similar? Why or Why not? Be sure to show your ratios if required.

a.



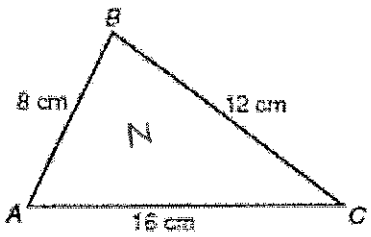



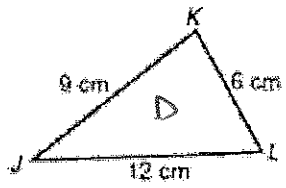

$\frac{3}{7}$ $\frac{5}{10}$ $\frac{6}{12}$

(.43) (.5) (.5)

Not similar because all corresponding sides are not proportional

b.



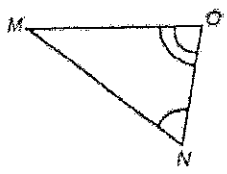



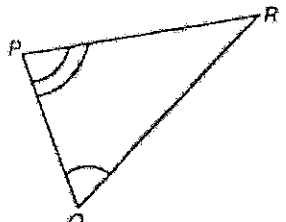

$\frac{8}{6}$ $\frac{12}{9}$ $\frac{16}{12}$

(1.3) (1.3) (1.3)

similar using SSS similarity Theorem (sides are proportional)

c.

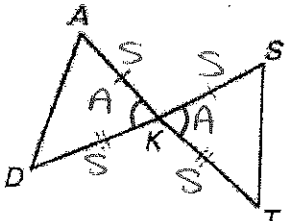



similar using AA similarity postulate ($2 \cong$ angles)

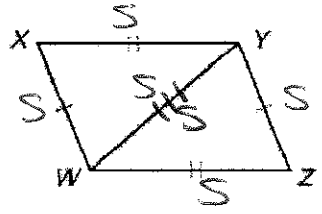
25. Are the triangles below congruent? Justify your answer:

a.



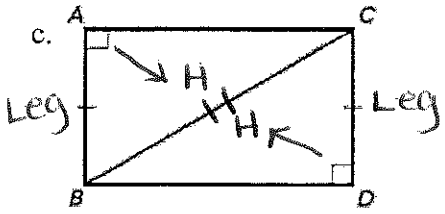

congruent using SAS cong. Th.

b.



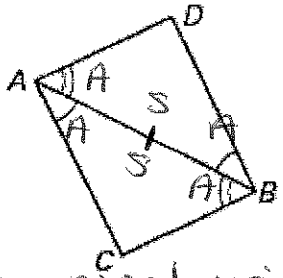

congruent using SSS cong. Th.

c.



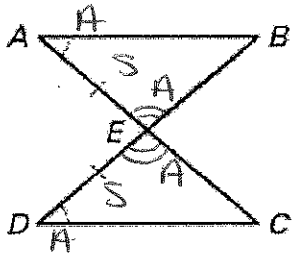

congruent using HL cong. Th.

d.



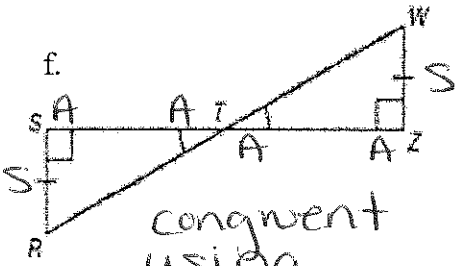

congruent using ASA cong. Th.

e.



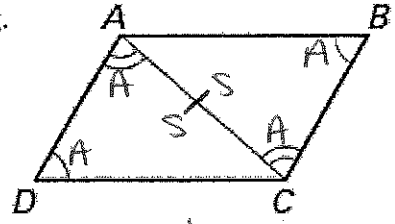

congruent using ASA cong. Th.

f.



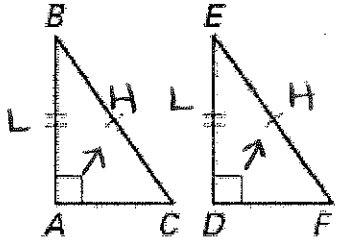

congruent using AAS cong. Th

g.



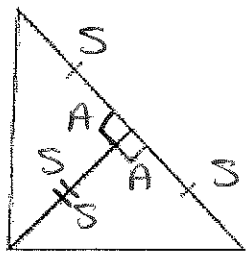

congruent using AAS cong. Th.

h.



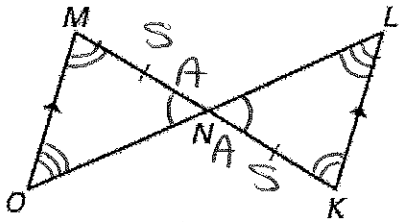

congruent using HL cong. Th.

i.



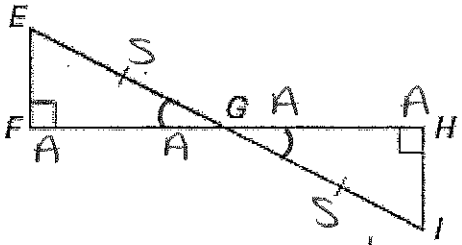

congruent using SAS cong. Th.

k.




congruent using AAS or ASA cong. Th.

l.




congruent using AAS cong. Th.

26. Given $\Delta ABC \cong \Delta KLM$ (1 2 3 / 1 2 3), identify the following:

$\angle A \cong$ ∠K  AB ≅ KL

$\angle B \cong$ ∠L  AC ≅ KM

$\angle C \cong$ ∠M  BC ≅ LM

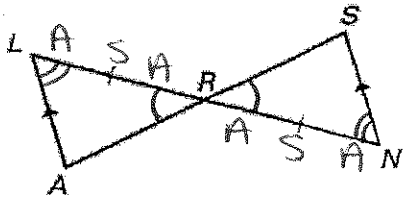
} match up corresponding parts. CPCTC

27. Complete the following Proof:

mark only what they give you in the statements to determine the Congruency Theorem

**Given:** $\overline{LA} \parallel \overline{SN}$, $\overline{LR} \cong \overline{NR}$

**Prove:** $\triangle LAR \cong \triangle NSR$

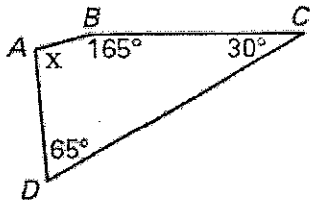



| Statements | Reasons |
|---|---|
| 1. $\overline{LA} \parallel \overline{SN}$ | 1. Given |
| 2. $\angle L \cong \angle N$ | 2. Alt Interior Angles |
| 3. $\overline{LR} \cong \overline{NR}$ | 3. Given |
| 4. $\angle LRA \cong \angle NRS$ | 4. vertical Angles |
| 5. $\triangle LAR \cong \triangle NSR$ | 5. ASA cong. th. |

28. Use properties of quadrilaterals and parallelograms to find the missing variable(s):

a. Quadrilateral ABCD

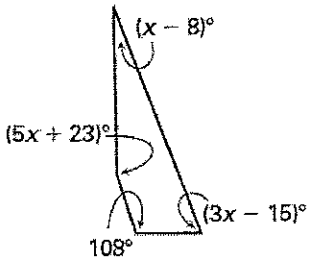
int ∠'s = 360°




$x + 260 = 360$
$-260 \quad -260$
$x = 100°$

b. Quadrilateral

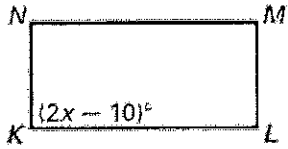
int ∠'s = 360°




$9x + 108 = 360$
$-108 \quad -108$
$\frac{9x}{9} = \frac{252}{9}$
$x = 28$

c. Rectangle NMLK

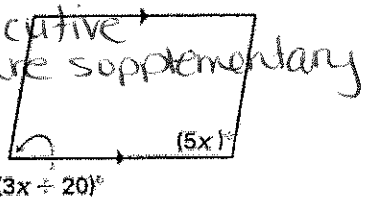
All 4 angles are right angles




$2x - 10 = 90$
$+10 \quad +10$
$\frac{2x}{2} = \frac{100}{2}$
$x = 50$

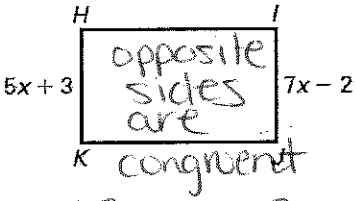
d. Parallelogram

consecutive ∠'s are supplementary




$3x + 20 + 5x = 180$
$8x + 20 = 180$
$-20 \quad -20$
$\frac{8x}{8} = \frac{160}{8}$
$x = 20$

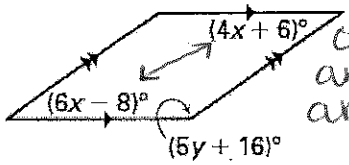
e. Rectangle HIJK




$5x + 3 = 7x - 2$
$-5x \quad -5x$
$3 = 2x - 2$
$+2 \quad +2$
$\frac{5}{2} = \frac{2x}{2}$
$x = 2.5$

f. Parallelogram (solve for x)

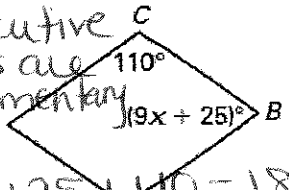
opposite angles are ≅




$6x - 8 = 4x + 6$
$-4x \quad -4x$
$2x - 8 = 6$
$+8 \quad +8$
$\frac{2x}{2} = \frac{14}{2}$
$x = 7$

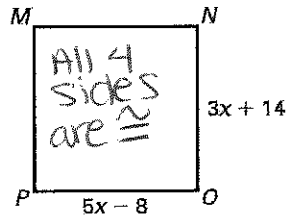
g. Rhombus

consecutive angles are supplementary




$9x + 25 + 110 = 180$
$9x + 135 = 180$
$-135 \quad -135$
$\frac{9x}{9} = \frac{45}{9}$
$x = 5$

h. Square




$3x + 14 = 5x - 8$
$-3x \quad -3x$
$14 = 2x - 8$
$+8 \quad +8$
$\frac{22}{2} = \frac{2x}{2}$
$11 = x$

★ Be Familiar with Your Constructions