

Corresponding Parts of Congruent Figures are Congruent

Practice and Problem Solving: A/B

1. If $\triangle KLM \cong \triangle GHI$, list all of the pairs of congruent angles and sides of the figures.

$$\begin{array}{ll} \underline{LK} \cong \underline{LG} & \underline{KL} \cong \underline{GH} \\ \underline{LL} \cong \underline{LH} & \underline{LM} \cong \underline{HI} \\ \underline{LM} \cong \underline{LI} & \underline{KM} \cong \underline{GI} \end{array}$$

Quadrilateral $ABCD \cong$ quadrilateral $EFGH$. In quadrilateral $ABCD$, $AB = 16$, $BC = 5w + 7$, $m\angle C = (2z - 1)^\circ$, and $m\angle D = 50^\circ$. In quadrilateral $EFGH$, $EF = 3y + 1$, $FG = 8$, $m\angle G = 80^\circ$, and $m\angle H = (2x)^\circ$. Find the value of the indicated variable.

2. Find the value of w .

$$\begin{aligned} BC &= FG \\ 5w + 7 &= 8 \\ 5w &= 1 \\ w &= \frac{1}{5} \end{aligned}$$

3. Find the value of x .

$$\begin{aligned} m\angle H &= m\angle D \\ 2x &= 50 \\ x &= 25 \end{aligned}$$

4. Find the value of y .

$$\begin{aligned} EF &= AB \\ 3y + 1 &= 16 \\ 3y &= 15 \\ y &= 5 \end{aligned}$$

5. Find the value of z .

$$\begin{aligned} m\angle C &= m\angle G \\ 2z - 1 &= 80 \\ 2z &= 81 \\ z &= \frac{81}{2} = 40.5 \end{aligned}$$

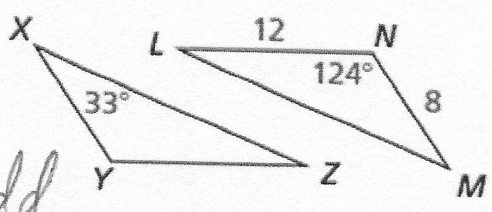
In Exercises 6 - 9, $\triangle XYZ \cong \triangle MNL$.

6. $m\angle Y = \underline{124}$

7. $m\angle M = \underline{33}$

8. $m\angle Z = \underline{23}$ ↖ angles add to 180°

9. $XY = \underline{8}$



In Exercises 10 and 11, find the values of x and y .

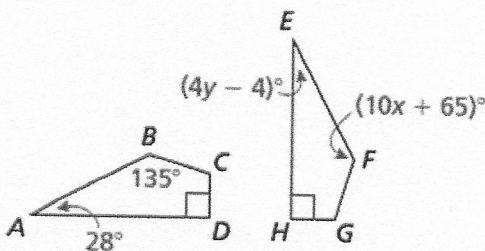
10. $ABCD \cong EFGH$

$$m\angle F = m\angle B$$

$$10x + 65 = 135$$

$$10x = 70$$

$$x = 7$$



$$m\angle E = m\angle A$$

$$4y - 4 = 28$$

$$4y = 32$$

$$y = 8$$

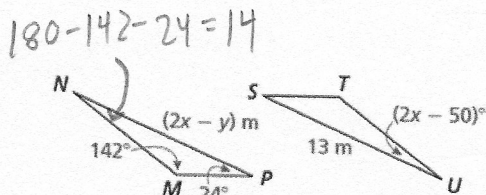
11. $\triangle MNP \cong \triangle TUS$

$$m\angle U = m\angle N$$

$$2x - 50 = 14$$

$$2x = 64$$

$$x = 32$$



$$180 - 142 - 24 = 14$$

$$NP = UT$$

$$2x - y = 13$$

$$2(32) - y = 13$$

$$64 - y = 13$$

$$y = 51$$

If $\triangle ABC \cong \triangle EFG$, determine if each statement is True or False. If false, explain why.

12. The measure of $\angle A$ is 45° .

$$m\angle A = m\angle E$$

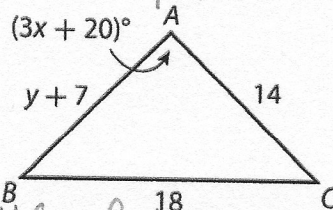
$$3x + 20 = 5x - 80$$

$$100 = 2x$$

$$x = 50$$

$$m\angle A = 3(50) + 20 = 170$$

False



13. The perimeter of $\triangle EFG$ is 32.

$$AB = EF$$

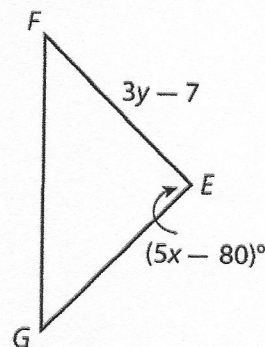
$$EF = 3(7) - 7 = 14$$

$$FG = BC = 18$$

$$EG = AC = 14$$

$$P = 14 + 18 + 14 = 46$$

False



14. The longest side of $\triangle EFG$ is \overline{FE} .

False

In Exercises 15 and 16, use the given information to write and solve a system of linear equations to find the values of x and y .

15. $\triangle LMN \cong \triangle PQR$, $m\angle L = 40^\circ$, $m\angle M = 90^\circ$, $m\angle P = (17x - y)^\circ$, $m\angle R = (2x + 4y)^\circ$

16. $\triangle STU \cong \triangle XYZ$, $m\angle T = 28^\circ$, $m\angle U = (4x + y)^\circ$, $m\angle X = 130^\circ$, $m\angle Y = (8x - 6y)^\circ$