QUIZ DATE: _____
Math 2 – Honors
Unit 6 –Triangles & Congruence
Lesson 1 → Congruent Triangles & CPCTC

TEST DATE: _____
Name_____
Date_____Pd_____

➢ **Review:** Similar triangles are the SAME SHAPE but DIFFERENT SIZES. In order for two triangles to be similar, the **corresponding angles** must be **congruent** and the **corresponding sides** must be **proportional**.

➢ **Congruent Triangles:** Triangles that are the same _Shape_ and the same _size_.
  ▪ Each triangle has three congruent _sides_ and three congruent _∠'s_.
  ▪ If all **SIX** of the corresponding parts of two triangles are _≅_____, then the triangles are _____.

Congruent Triangles: $\triangle ABC \cong \triangle EFG$

Corresponding Congruent Angles: $\angle A \cong \angle E$ ...

Corresponding Congruent Sides: $\overline{AB} \cong \overline{EF}$ ...

➢ **Definition of Congruent Triangles (CPCTC):**
  ▪ Two triangles are congruent if and only if their corresponding parts are _≅_____.
  ▪ *CPCTC* – Corresponding **Parts** of Congruent **Triangles** are **Congruent**

1. Write a congruency statement for the two triangles at right.

$\triangle ARC \cong \triangle EOG$
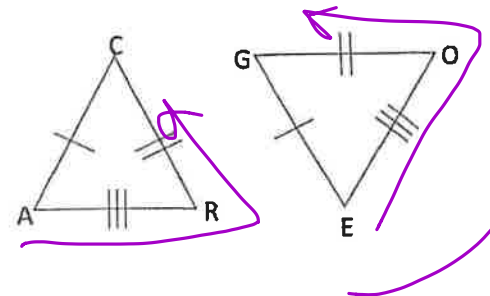
2. List ALL of the congruent parts if $\triangle EFG \cong \triangle HGF$.

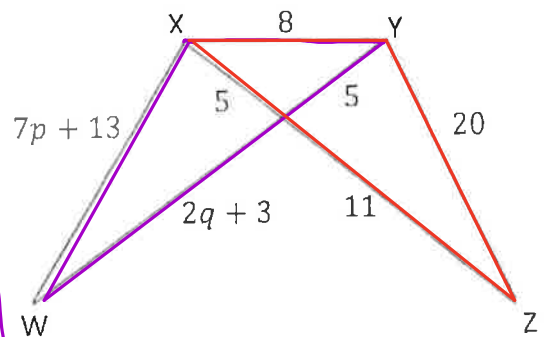3. | $\triangle WXY \cong \triangle ZYX$ | Solve for p and q.

$7p + 13 = 20$

$7p = 7$

$p = 1$

$2q + 3 + 5 = 5 + 11$

$2q = 8$ $q = 4$

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4. $\triangle ADC \cong \triangle CBA$ Solve for x. Then find the $m\angle B$ & $m\angle D$.
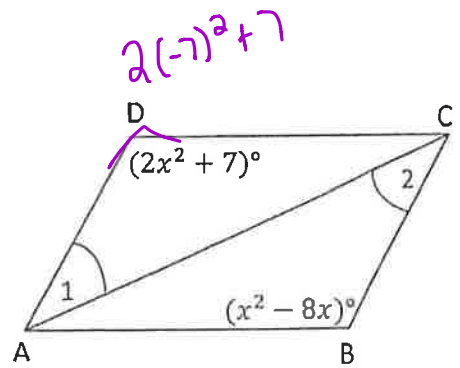
$2(-7)^2+7$

$2x^2+7 = x^2-8x$
$ -x^2+8x$
$x^2+8x+7=0$
$(x+7)(x+1)=0$
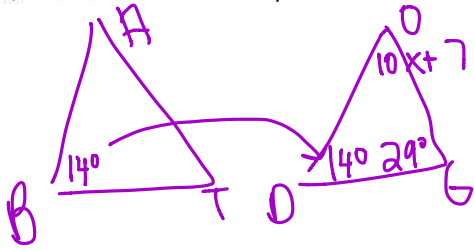$x=-7$
$x=-1$

D   C
$(2x^2+7)°$
2
1
$(x^2-8x)°$
A   B

> **Draw and label a diagram. Solve for the missing variable(s).**

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5. If $\triangle BAT \cong \triangle DOG$, and $m\angle B = 14°$, $m\angle G = 29°$ and $m\angle O = (10x+7)°$, find x and $m\angle O$.

$14+29+10x+7=180$
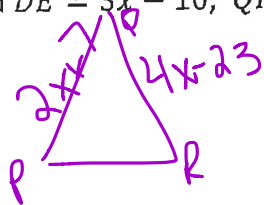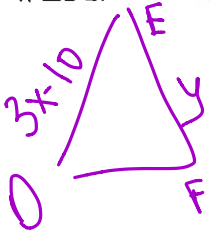
$137°$

$10x+50=180$ $\quad x=130$
$-50 \quad -50 \quad \boxed{x=13}$

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6. If $\triangle COW \cong \triangle PIG$, and $CO = 25$, $CW = 18$, $IG = 23$ and $PG = 7x - 17$, find x and **PG**.

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7. If $\triangle DEF \cong \triangle PQR$ and $DE = 3x - 10$, $QR = 4x - 23$, $PQ = 2x + 7$ and $EF = y$, find x and y.

$3x-10$ y $2x$ $4x-23$

$y=4x-23$ $y=4(17)-23$

$3x-10=2x+7$ $\boxed{y=45}$
$-2x+10 \;\; -2x+10$ $\boxed{x=17}$

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8. If $\triangle DEF \cong \triangle JKL$ and $DE = x^2 - 3x$, $KJ = 28$, $m\angle E = (8y^2 - 6y)°$ and $m\angle K = 5°$, find x and y.

$x=7 \quad x=-4$

$y=5/4 \quad y=-1/2$

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> $\triangle PQR \cong \triangle ABC$
> Find the values of x and y

Given:
 	
1. $m\angle R = (5x + 70)°$ $QR = 4y + 2$
    $m\angle C = (24x - 25)°$ $BC = x + y$
	Given:
	
	2. $m\angle R = (90 - y)°$ $PR = 3x + y - 1$
	    $m\angle C = 13°$ $AC = 32 - x$

Given:
 	
3. $PQ = 5x - 31$ $AB = x + 1$
    $QR = -3y - 1$ $BC = 9 - y$
	Given:
	
	4. $m\angle A = (15y - 3)°$ $PQ = 11 - x$
	    $m\angle P = (43 - x)°$ $AB = 3y + 1$

Given:
 	
5. $AB = 2x + y$ $PQ = 7$
    $QR = 4x + y$ $BC = 11$
	Given:
	
	6. $m\angle P = (x + 10)°$ $m\angle Q = (3x)°$
	    $m\angle A = (y + 20)°$ $m\angle B = (x + 3y)°$
	
	Find the $m\angle P$ and the $m\angle Q$.

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