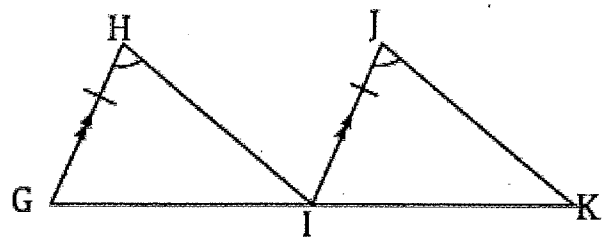
Triangle Proofs and Test Review Worksheet #1 September 24, 2014 (Wednesday)

1.

Given: GH||IJ , ∠H≅∠J and GH≅IJ

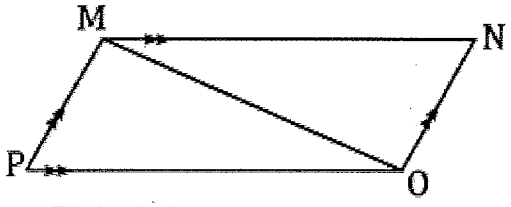


Prove: ∠GIH≅∠IKJ

Statements	Reasons
1.	1. Given
2. ∠H≅∠J	2.
3.	3.
4.	4. Alternate Interior
5.	5.
6.	6. CPCTC

2.

Given: PM||NO, MN||PO,

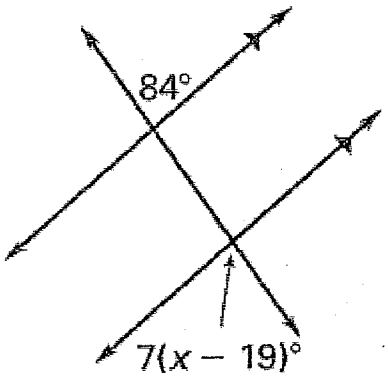


Prove: PM≅ON

Statements	Reasons
1. PM||ON	1.
2.	2. Given
3. ∠PMO≅∠NOP	3.
4.	4. Alternate Interior
5. $\overline{MO}\cong\overline{MO}$	5.
6.	6. ASA
7.	7.

Find the values of x:

3.



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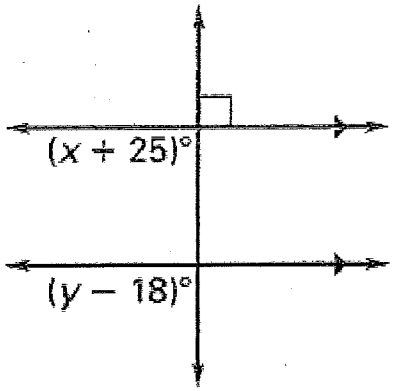

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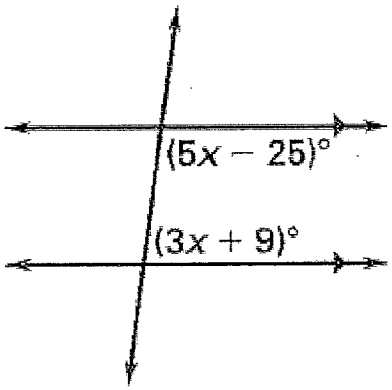

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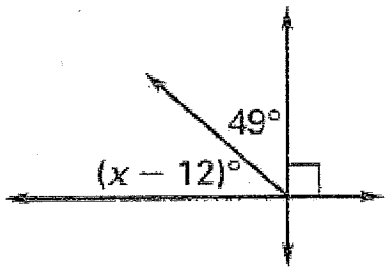
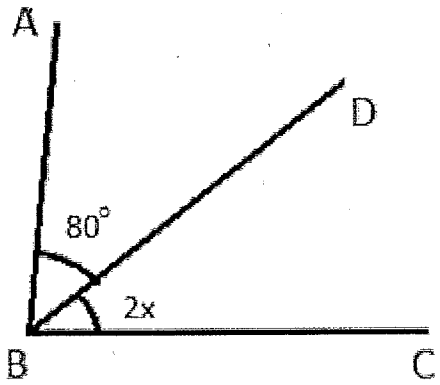


7. Find the below information

Find the value of x, if $\overline{BD}$ is the angle bisector of ∠ABC.



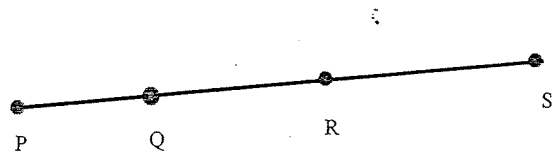
x_____ ∠DBC_____ ∠ABC_____

8.

Points A, B, and C are collinear. Point B is between A and C. Solve for x. AB = 8, AC = x + 21, and BC = 2x + 20

x = _____

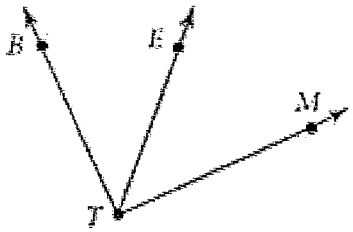
9. In the diagram of collinear points, QS = 21, QR = 7, and PR = 13. Find the length of PQ, RS, and PS.



PQ = _____ RS = _____ PS = _____

10. In the diagram to the right, $\overrightarrow{TE}$ is an angle bisector of ∠BTM.

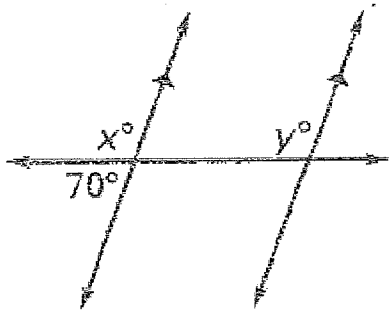
Find the below if m ∠ ETM= $(2x + 12)^0$, and m ∠ BTM = 76^0.



x = _____ m ∠ ETM = _____ m ∠ BTE = _____

Find x and y

11.



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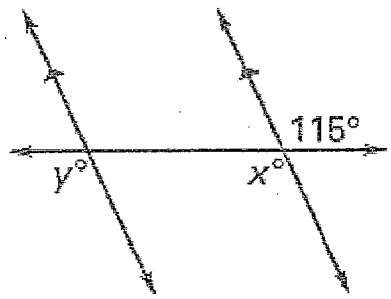

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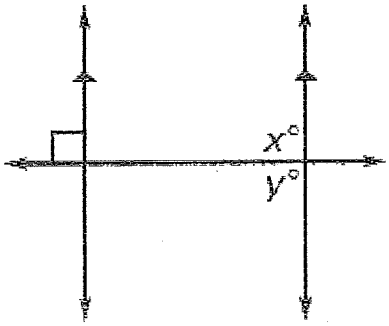

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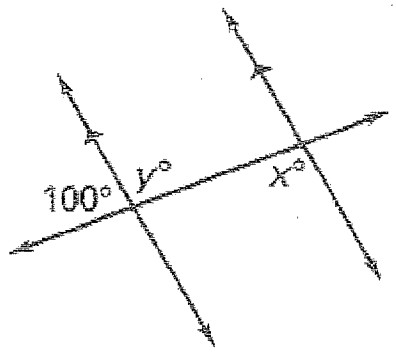

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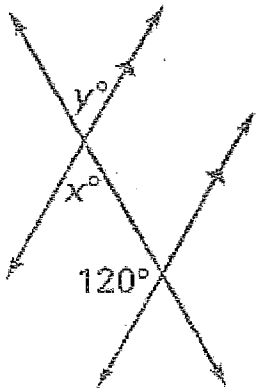

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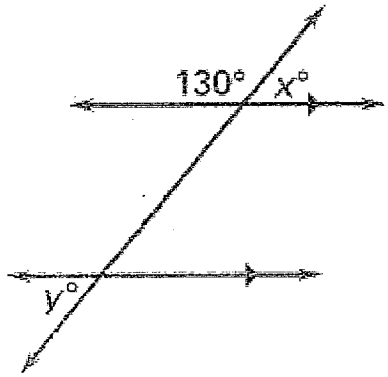
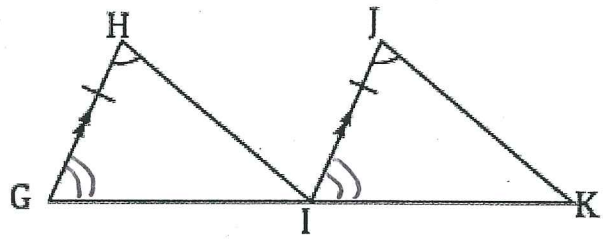


Triangle Proofs and Test Review Worksheet #1 September 24, 2014 (Wednesday)

Key

1.

Given: GH||IJ , ∠H≅∠J and GH≅IJ

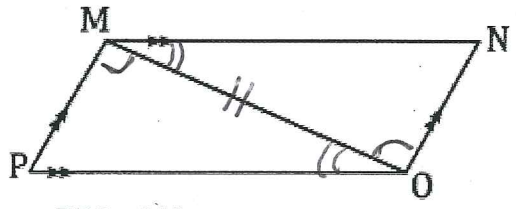


Prove: ∠GIH≅∠IKJ

Statements	Reasons
1. GH ∥ IJ	1. Given
2. ∠H≅∠J	2. Given
3. GH ≅ IJ	3. Given
4. ∠HGI ≅ ∠JIK	4. Corresponding angles congruent
5. ΔGHI ≅ ΔIJK	5. ASA
6. ∠GIH ≅ ∠IKJ	6. CPCTC

2.

Given: PM||NO, MN||PO,

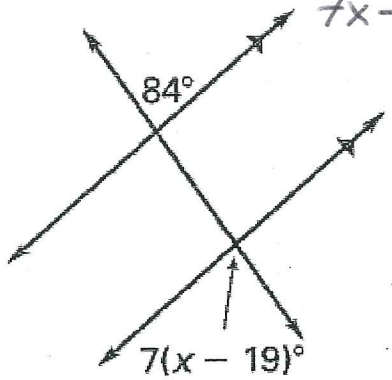


Prove: PM≅ON

Statements	Reasons
1. PM||ON	1. Given
2. MN ∥ PO	2. Given
3. ∠PMO≅∠NOP	3. Alternate Interior
4. ∠OMN ≅ ∠POM	4. Alternate Interior
5. $\overline{MO}$≅$\overline{MO}$	5. Reflexive property
6. ΔPMO ≅ ∠NOP	6. ASA
7. $\overline{PM}$ ≅ $\overline{ON}$	7. CPCTC

Find the values of x:

3.



$7(x-19)=84$

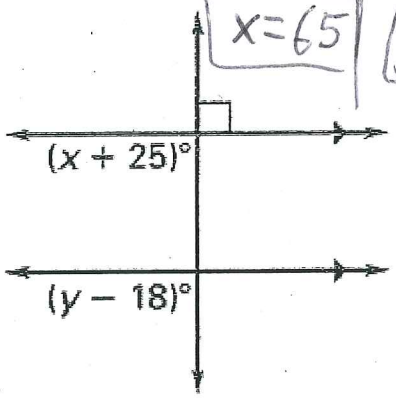
$7x-133=84$

$7x=217$

$\boxed{x=31}$

$7(31-19)=84°$

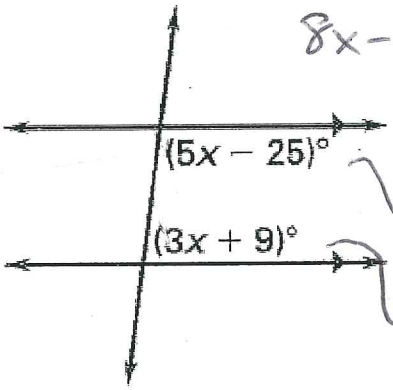
4.



$x+25=90$ | $y-18=90$

$\boxed{x=65}$ $\boxed{y=108}$

5.



$5x-25+3x+9=180$

$8x-16=180$

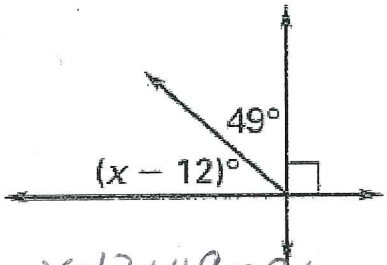
$8x=196$

$\boxed{x=24.5}$

$97.5°$

$82.5°$

6.



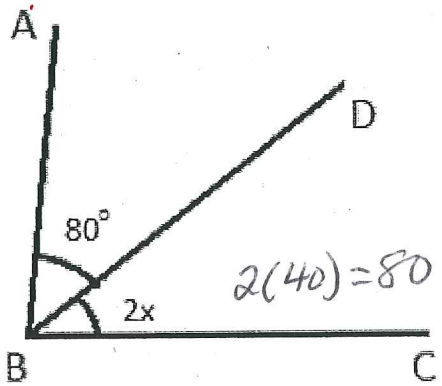
$x-12+49=90$

$x+37=90$

$\boxed{x=53}$

7. Find the below information

Find the value of x, if $\overline{BD}$ is the angle bisector of ∠ABC.



$2(40)=80$

$\angle ABD \cong \angle DBC$

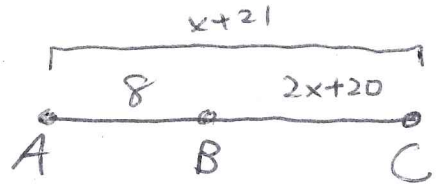
$80=2x$

$40=x$

x $=40$ ∠DBC 80 ∠ABC $80+80=160°$

8.

Points A, B, and C are collinear. Point B is between A and C. Solve for x. AB = 8, AC = x + 21, and BC = 2x + 20



x = -7

$AB + BC = AC$

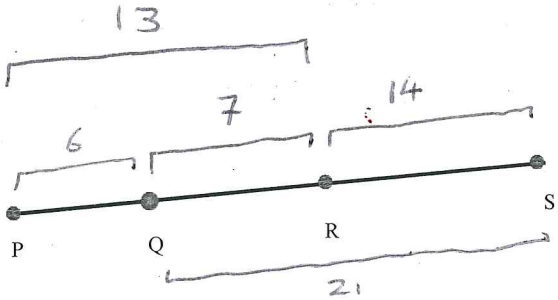
$8 + 2x + 20 = x + 21$

$2x + 28 = x + 21$

$x = 21 - 28$

$\boxed{x = -7}$

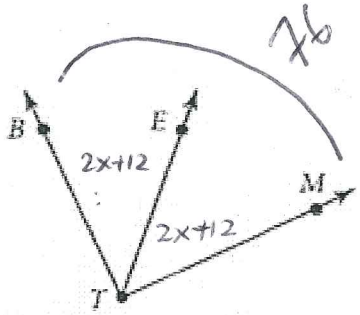
9. In the diagram of collinear points, QS = 21, QR = 7, and PR = 13. Find the length of PQ, RS, and PS.



PQ = 6 RS = 14 PS = 27

10. In the diagram to the right, $\overrightarrow{TE}$ is an angle bisector of ∠BTM.

Find the below if m ∠ ETM= $(2x + 12)^0$, and m ∠ BTM = 76^0.



x = 13 m ∠ ETM = 38° m∠BTE m ∠ ~~BTE~~ = 38°

$2x + 12 + 2x + 12 = 76$

$4x + 24 = 76$

$4x = 52$

$x = 13$

$2x + 12$

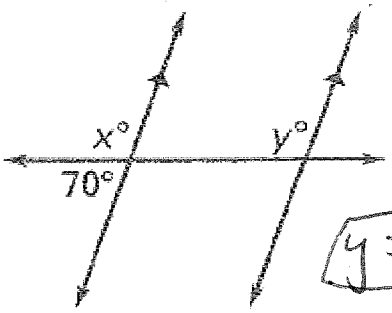
$2(13) + 12$

$26 + 12 = 38$

Find x and y

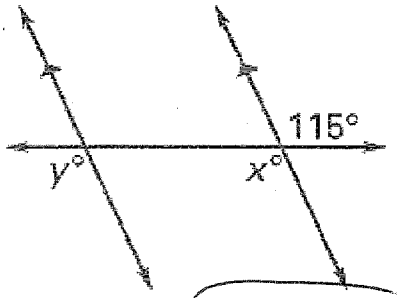
$x+70=180$

11. $\boxed{x=110}$



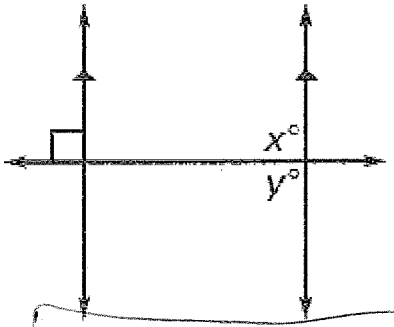
$\boxed{y=110}$

12.



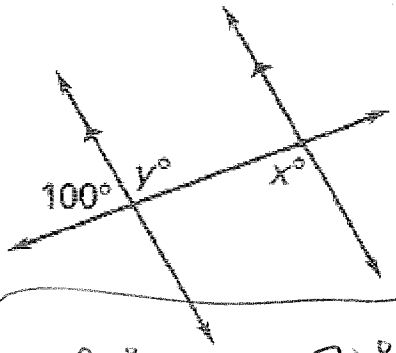
$\boxed{x=115^\circ \quad y=115^\circ}$

13.



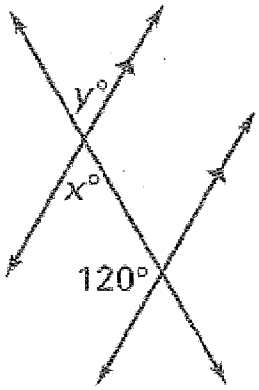
$\boxed{x=90^\circ \quad y=90^\circ}$

14.



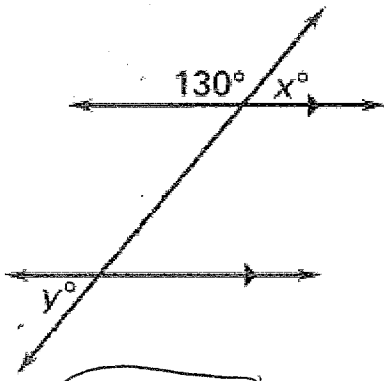
$\boxed{y=80^\circ \quad x=80^\circ}$

15.



$\boxed{x=60^\circ \quad y=60^\circ}$

16.



$\boxed{x=50^\circ}$

$\boxed{y=50^\circ}$