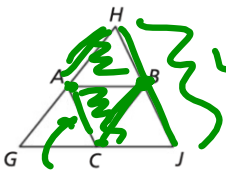
Bell Ringer

Wednesday 2/5

1. Use ΔGHJ where A, B and C are midpoints. When $AC = 3x - 5$ and $HJ = 4x + 2$, what is HB?



$4x+2$

$HB = 13$

$3x-5$

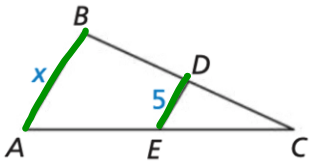
$6 \cdot 3 - 5 = 13$

$2(3x-5) = 4x+2$

$6x - 10 = 4x + 2$

$2x = 12 \quad x = 6$

2. $\overline{DE}$ is a midsegment of ΔABC. Find the value of x.



$x = 2 \cdot 5$

$x = 10$

6.4 Medians and Altitudes of Triangles online due **TODAY**

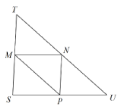
6.5 Triangle Midsegment Theorem online due **TOMORROW**

Feb 4-10:58 AM

Due Friday

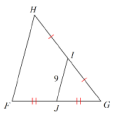
Name: _____ Hr:____ **Triangle Proofs ws**

1. Name the parallel segment

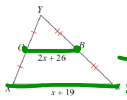


$\overline{MP} \parallel$ ___

2. Find HF



3. Find XZ



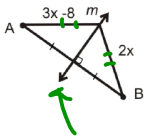
$2(2x+26) = x+19$

$4x + 52 = x + 19$

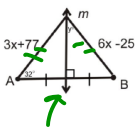
$3x = -33 \quad x = -11$

$-11+19 = 8 = XZ$

4. Solve for x.

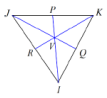


5. Solve for x and y

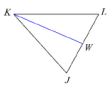


For problems 6-8 assume the segments that appear to be medians are medians.

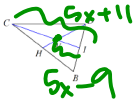
6. Find VR if $KR = 33$



7. Find JL if $WL = 2.1$



8. Find x if $CI = 5x + 11$ and $VI = 5x - 9$



$(5x+11) = 3(5x-9)$

$5x+11 = 15x - 27$

$-5x+27 \quad -5x+27$

$38 = 10x \quad x = 3.8$

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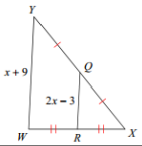
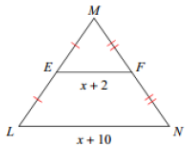
9. Given: $\overline{QR}$ is a midsegment of $\triangle XYW$
Prove: $x = 5$



Statement	Reason
1. $\overline{QR}$ is a midsegment of $\triangle XYW$	1.
2. $\overline{QR} = \frac{1}{2}\overline{YW}$	2.
3. $\overline{YW} = x+9$; $\overline{QR} = 2x-3$	3.
4. $2x-3 = \frac{1}{2}(x+9)$	4.
5. $4x-6 = x+9$	5.
6. $3x-6 = 9$	6.
7. $3x = 15$	7.
8. $x = 5$	8.

10. Given: $\overline{EF}$ is a midsegment of $\triangle MLN$
Prove: $x = 6$



Statement	Reason
1. $\overline{EF}$ is a midsegment of $\triangle MLN$	1.
2. $\overline{EF} = \frac{1}{2}\overline{LN}$	2.
3. $\overline{LN} = x+10$; $\overline{EF} = x+2$	3.
4. $x+2 = \frac{1}{2}(x+10)$	4.
5. $2x+4 = x+10$	5.
6. $x+4 = 10$	6.
7. $x = 6$	7.

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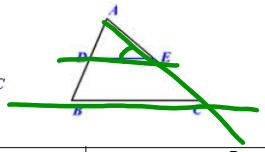
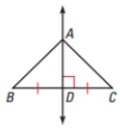
11. Given: $\angle A = 75^\circ$
$\angle ADE = 80^\circ$
$\overline{DE}$ is a midsegment in $\triangle ABC$
Prove: $\angle C = 25^\circ$



Statement	Reason
1. $\angle A = 75^\circ$; $\angle ADE = 80^\circ$	1. Given
2. $\angle A + \angle ADE + \angle AED = 180^\circ$	2. All triangles + to 180°
3. $75^\circ + 80^\circ + \angle AED = 180^\circ$	3. Substitution P.
4. $155^\circ + \angle AED = 180^\circ$	4. Substitution P.
5. $\angle AED = 25^\circ$	5. Subtraction P.
6. $\overline{DE}$ is a midsegment in $\triangle ABC$	6. Given
7. $\overline{DE} \parallel \overline{BC}$	7. Midsegment is // to our base
8. $\angle AED \cong \angle C$	8. Corresponding ∠'s
9. $\angle C = 25^\circ$	9. Transitive P.

Prove the Perpendicular Bisector Theorem

12. Given: $\overleftrightarrow{AD}$ is the $\perp$ bisector of $\overline{BC}$
Prove: $AB = AC$



Statement	Reason
1. $\overleftrightarrow{AD}$ is the $\perp$ bisector of $\overline{BC}$	1.
2. $\overline{DB} \cong \overline{DC}$	2.
3. $\angle ADC$ and $\angle ADB$ are right angles	3.
4. $\angle ADC \cong \angle ADB$	4.
5. $\overline{AD} \cong \overline{AD}$	5.
6. $\triangle ADB \cong \triangle ADC$	6.
7. $\overline{AB} \cong \overline{AC}$	7.
8. $AB = AC$	8.

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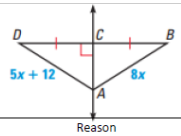
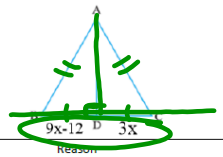
13. Given: $\overleftrightarrow{AC}$ is the $\perp$ bisector of $\overline{DB}$
Prove: $AB = 32$



Statement	Reason
1. $\overleftrightarrow{AC}$ is the $\perp$ bisector of $\overline{DB}$	1.
2. $\overline{AB} = \overline{AD}$	2.
3. $AD = 5x + 12$; $AB = 8x$	3.
4. $8x = 5x + 12$	4.
5. $3x = 12$	5.
6. $x = 4$	6.
7. $AB = 8(4)$	7.
8. $AB = 32$	8.

14. Given: $AB = AC$
$\angle ADB = 90^\circ$
Prove: $BD = 6$



Statement	Reason
1. $AB = AC$	1. Given
2. $\overline{AD} \perp \overline{BC}$	2. Converse to ⊥ bisector Thm
3. $\overline{BD} = \overline{DC}$	3. Definition of Bisector
4. $DC = 3x$ $BD = 9x - 12$	4. Given
5. $9x - 12 = 3x$	5. Substitution P.
6. $6x - 12 = 0$	6. Subtraction P.
7. $6x = 12$	7. Addition P.
8. $x = 2$	8. Division P.
9. $BD = 9(2) - 12$	9. Substitution P.
10. $BD = 6$	10. Substitution P.

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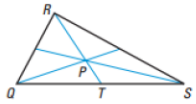
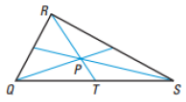
15. Given: P is the centroid of $\triangle QRS$
$PT = 5$
Prove: $RT = 15$



Statement	Reason
1. P is the centroid of $\triangle QRS$	1.
2. $PR = \frac{2}{3}RT$	2.
3. $PR + PT = RT$	3.
4. $\frac{2}{3}RT + PT = RT$	4.
5. $PT = \frac{1}{3}RT$	5.
6. $PT = 5$	6.
7. $5 = \frac{1}{3}RT$	7.
8. $15 = RT$	8.
9. $RT = 15$	9.

16. Given: P is the centroid of $\triangle QRS$
$PR = 26$
Prove: $PT = 13$



Statement	Reason
1. P is the centroid of $\triangle QRS$	1.
2. $PR = \frac{2}{3}RT$	2.
3. $PR = 26$	3.
4. $26 = \frac{2}{3}RT$	4.
5. $39 = RT$	5.
6. $PR + PT = RT$	6.
7. $26 + PT = 39$	7.
8. $PT = 13$	8.

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