

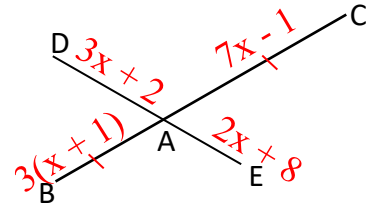
Geometry
Unit One B – Proof Quiz #1 Review (HW14/15)

Name: _____
 Date: _____ Period: _____

1. Given: \overline{DE} bisects \overline{BC} ; $DA = 3x + 2$, $AE = 2x + 8$, $AC = 7x - 1$, $AB = 3(x + 1)$. Find BC .

$$\begin{aligned} BA &= CA \\ 3(x + 1) &= 7x - 1 \\ 3x + 3 &= 7x - 1 \\ 4 &= 4x \\ x &= 1 \end{aligned}$$

$$\begin{aligned} 3(1 + 1) + 7(1) - 1 &= BC \\ 3(2) + 7 - 1 &= 12 \\ BC &= 12 \end{aligned}$$



2. Given: $\angle ABD \cong \angle CBE$, $m\angle 1 = 3x$, $m\angle 2 = 5x - 42$, and $m\angle CBD = 25^\circ$. Find $m\angle ABE$.

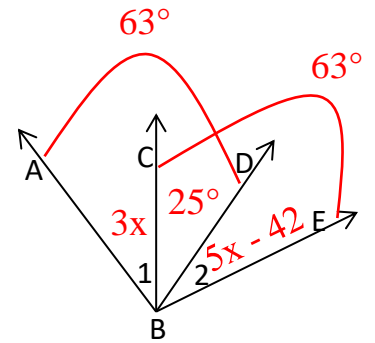
$\angle 1 \cong \angle 2$ by overlapping angles thm

$$\begin{aligned} 3x &= 5x - 42 \\ 42 &= 2x \\ 21 &= x \end{aligned}$$

$$3(21) = 63$$

$$\begin{array}{r} 126 \\ + 25 \\ \hline 151 \end{array}$$

$$151^\circ = m\angle ABE$$



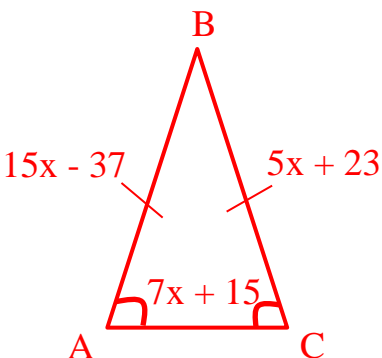
3. Given: $\triangle HAT \cong \triangle LOG$, $m\angle A = x^3 - 4x + 8$, $m\angle H = x^3 + 6x - 10$, $m\angle O = x^3 - 2x + 2$. Find $m\angle L$.

$$\begin{aligned} \angle H &\cong \angle L \\ \angle A &\cong \angle O \rightarrow x^3 - 4x + 8 = x^3 - 2x + 2 \\ \angle H &\cong \angle L & 8 &= 2x + 2 \\ & & 6 &= 2x \\ & & 3 &= x \end{aligned}$$

$$\begin{aligned} \angle H &\cong \angle L \rightarrow (3)^3 + 6(3) - 10 \\ m\angle L &= 27 + 18 - 10 \\ m\angle L &= 35^\circ \end{aligned}$$

4. If $\triangle ABC$ is an isosceles triangle with base \overline{AC} , find $m\angle A$ if $m\angle C = 7x + 15$, $AB = 15x - 37$, and $BC = 5x + 23$.

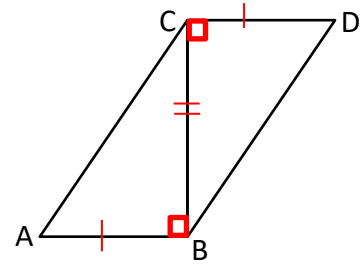
Draw and label a picture to help you solve.



$$\begin{aligned} 15x - 37 &= 5x + 23 \\ 10x &= 60 \\ x &= 6 \end{aligned}$$

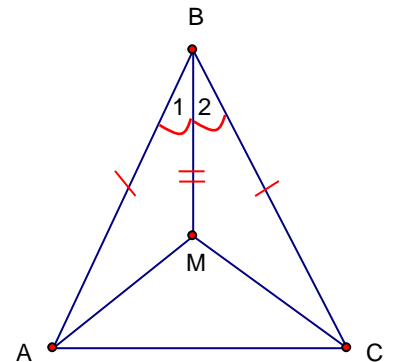
$$\begin{aligned} m\angle A &= m\angle C \\ m\angle A &= 7(6) + 15 \\ m\angle A &= 57^\circ \end{aligned}$$

5. Given: $\overline{AB} \perp \overline{BC}$; $\overline{CD} \perp \overline{BC}$; $\overline{AB} \cong \overline{DC}$
 Prove: $\triangle CAB \cong \triangle BDC$



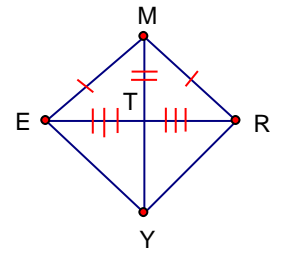
Statements	Reasons
1. $\overline{AB} \perp \overline{BC}$	1. Given
2. $\angle ABC$ is a right \angle	2. Definition of \perp
3. $\overline{CD} \perp \overline{BC}$	3. Given
4. $\angle BCD$ is a right \angle	4. Definition of \perp
5. $\angle ABC \cong \angle DCB$	5. all right \angle are \cong
6. $\overline{AB} \cong \overline{DC}$	6. Given
7. $\overline{BC} \cong \overline{CB}$	7. Reflexive prop
8. $\triangle CAB \cong \triangle BDC$	8. SAS

6. Given: $\overline{AB} \cong \overline{CB}$; \overline{BM} bisects $\angle ABC$
 Prove: $\triangle AMB \cong \triangle CMB$



Statements	Reasons
1. $\overline{AB} \cong \overline{CB}$	1. Given
2. \overline{BM} bisects $\angle ABC$	2. Given
3. $\angle 1 \cong \angle 2$	3. Definition of \angle bisector
4. $\overline{BM} \cong \overline{BM}$	4. Reflexive prop
5. $\triangle \underline{ABM} \cong \triangle \underline{CMB}$	5. SAS

7. Given: T is the midpoint of \overline{ER} ; $\overline{ME} \cong \overline{MR}$
 Prove: $\triangle MTE \cong \triangle MTR$



Statements	Reasons
1. T is the midpoint of \overline{ER}	1. Given
2. $\overline{ET} \cong \overline{RT}$	2. Definition of midpoint
3. $\overline{ME} \cong \overline{MR}$	3. Given
4. $\overline{MT} \cong \overline{MT}$	4. Reflexive prop
5. $\triangle MTE \cong \triangle MTR$	5. SSS

8. Given $\text{GHOUL} \cong \text{CANDY}$, fill in the statements below.

a) $\overline{OH} \cong \underline{\overline{NA}}$

b) $\overline{YC} \cong \underline{\overline{LG}}$

c) $\angle U \cong \angle \underline{D}$

d) $\angle A \cong \angle \underline{H}$

