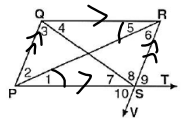
GCC Review for Quarter 2 Exam 2

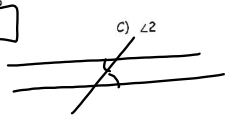
Directions: This review is not comprehensive. In addition, study all classwork and handouts.

1) In the diagram below, $\overline{PQ} \parallel \overline{RS}$ and $\overline{QR} \parallel \overline{PS}$.



What is an angle congruent to ∠12?

A) ∠8 B) ∠5 C) ∠2 D) ∠6



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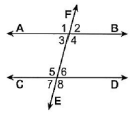
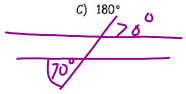
Questions 2 through 4 refer to the following:

In the diagram below, $\overline{AB} \parallel \overline{CD}$.



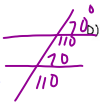
2) If $m\angle 2 = 70°$, what is $m\angle 7$? alt. ext. ∠'s are ≅.

A) 70° B) 110° C) 180° D) 20°



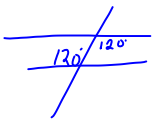
3) If $m\angle 8 = 110°$, what is $m\angle 2$?

A) 180° B) 70° C) 110° D) 20°



4) If $m\angle 4 = 120°$, what is $m\angle 5$? alt. int. ∠'s are ≅

A) 30° B) 60° C) 90° D) 120°



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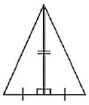
5) Two triangles are congruent if

A) corresponding sides and corresponding angles are congruent
B) corresponding angles are congruent
C) corresponding sides are proportional
D) the angles in each triangle have a sum of 180°

Questions 6 through 9 refer to the following:

What is the congruence correspondence, if any, that will prove the given triangles congruent?

6)



A) ASA B) SAS C) SSS D) none

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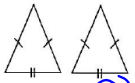
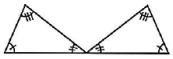
7)



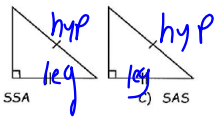
A) SAS B) AAS C) SSS D) none

8)



A) AAS B) SSS C) ASA D) none

9)



A) HL B) SSA C) SAS D) none

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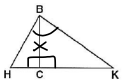
10) Given: $\overline{BC} \perp \overline{HK}$, $HC \neq CK$

Prove: $\overline{BC}$ does *not* bisect $\angle HBK$



S	R
① $\overline{BC} \perp \overline{HK}$	① Given
② $HC \neq CK$	② Given
③ $\overline{BC}$ bisects $\angle HBK$	③ Assumption
④ $\angle BCH$ & $\angle BCK$ are rt ∠'s	④ ⊥ lines form Rt ∠'s
⑤ $\angle BCH \cong \angle BCK$	⑤ All Rt ∠'s are ≅
⑥ $\angle HBC \cong \angle KBC$	⑥ An ∠ bisector ÷'s an ∠ into 2 ≅ ∠'s
⑦ $\overline{BC} \cong \overline{BC}$	⑦ Reflexive Prop.
⑧ $\triangle BHC \cong \triangle BKC$	⑧ ASA ≅ ASA
⑨ $\overline{HC} \cong \overline{CK}$	⑨ CPCTC
⑩ $\overline{BC}$ does not bisect $\angle HBK$	⑩ Contradiction 2 & 9

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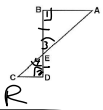
11) Given: $\overline{AB} \perp \overline{BD}$, $\overline{CD} \perp \overline{DB}$, $AB \neq CD$

Prove: $\overline{CA}$ does *not* bisect $\overline{BD}$



S	R
① $\overline{AB} \perp \overline{BD}$	① Given
② $\overline{CD} \perp \overline{DB}$	② Given
③ $\overline{AB} \neq \overline{CD}$	③ Given
④ $\overline{CA}$ bisects $\overline{BD}$	④ Assumption
⑤ $\overline{BE} \cong \overline{DE}$	⑤ Def. of a Segment bisector
⑥ $\angle 1$ & $\angle 2$ are Rt ∠'s	⑥ ⊥ lines form Rt ∠'s
⑦ $\angle 1 \cong \angle 2$	⑦ All Rt ∠'s are ≅.
⑧ $\angle 3 \cong \angle 4$	⑧ Vertical ∠'s are ≅
⑨ $\triangle ABE \cong \triangle CDE$	⑨ ASA postulate
⑩ $\overline{AB} \cong \overline{CD}$	⑩ CPCTC
⑪ $\overline{CA}$ does not bisect $\overline{BD}$	⑪ Contradiction 3 & 10

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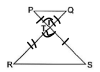
12) Given: $\overline{PQ} \not\parallel \overline{RS}$, $\overline{PS}$ and $\overline{QR}$ intersect at T
Prove: T is *not* the midpoint of $\overline{PS}$ and $\overline{RQ}$



S	R
① $\overline{PQ} \not\parallel \overline{RS}$	① Given
② $\overline{PS}$ and $\overline{QR}$ intersect at T	② Given
③ T is the Midpoint of $\overline{PS}$ & $\overline{RQ}$	③ Assumption
④ $\overline{PT} = \overline{ST}$, $\overline{QT} = \overline{RT}$	④ Def. of a midpoint
⑤ $\angle 1 \cong \angle 2$	⑤ Vertical $\angle$'s are $\cong$.
⑥ $\triangle PQT \cong \triangle SRT$	⑥ SAS Postulate
⑦ $\overline{PQ} = \overline{RS}$	⑦ CPCTC
⑧ T is not the midpoint of $\overline{PS}$ & $\overline{RQ}$	⑧ Contradiction 1 & 7

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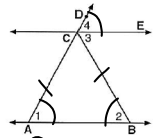
13) Given: $\angle 2 \cong \angle 4$, $\overline{CA} \cong \overline{CB}$
Prove: $\overline{CE} \parallel \overline{AB}$



S	R
① $\angle 2 \cong \angle 4$, $\overline{CA} \cong \overline{CB}$	① Given
② $\triangle ABC$ is isosc.	② An isosc. $\triangle$ has 2 $\cong$ sides
③ $\angle 1 \cong \angle 2$	③ an isosc. $\triangle$ has 2 $\cong$ base $\angle$'s.
④ $\angle 1 \cong \angle 4$	④ Subst. prop.
⑤ $\overline{CE} \parallel \overline{AB}$	⑤ If $\not\rightarrow\not\rightarrow$

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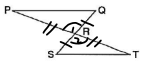
14) Given: $\overline{PT}$ and $\overline{QS}$ bisect each other
Prove: $\overline{PQ} \parallel \overline{ST}$



S	R
① $\overline{PT}$ & $\overline{QS}$ bisect each other	① Given
② $\overline{PR} \cong \overline{TR}$, $\overline{QR} \cong \overline{SR}$	② A segment bisector divides a segment into 2 $\cong$ segments.
③ $\angle 1 \cong \angle 2$	③ Vertical $\angle$'s are $\cong$
④ $\triangle PQR \cong \triangle TSR$	④ SAS $\cong$ SAS
⑤ $\angle PQR \cong \angle TSR$	⑤ CPCTC
⑥ $\overline{PQ} \parallel \overline{ST}$	⑥ If $\not\rightarrow\not\rightarrow$

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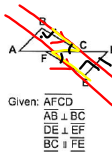
15) Complete the partial proof below for the accompanying diagram by providing reasons for steps 3, 6, 8, and 9.



Given: $\overline{AFCD}$, $\overline{AB} \perp \overline{BC}$, $\overline{DE} \perp \overline{EF}$, $\overline{BC} \parallel \overline{FE}$, $\overline{AB} \cong \overline{DE}$
Prove: $\overline{AC} \cong \overline{FD}$

STATEMENTS	REASONS
(1) $\overline{AFCD}$	(1) Given
(2) $\overline{AB} \perp \overline{BC}$, $\overline{DE} \perp \overline{EF}$	(2) Given
(3) $\angle B$ and $\angle E$ are right angles.	(3) $\perp$ lines form Rt. $\angle$'s
(4) $\angle B \cong \angle E$	(4) All right angles are congruent.
(5) $\overline{BC} \parallel \overline{FE}$	(5) Given
(6) $\angle BCA \cong \angle EFD$	(6) If $\not\rightarrow\not\rightarrow$
(7) $\overline{AB} \cong \overline{DE}$	(7) Given
(8) $\triangle ABC \cong \triangle DEF$	(8) AAS postulate
(9) $\overline{AC} \cong \overline{FD}$	(9) CPCTC

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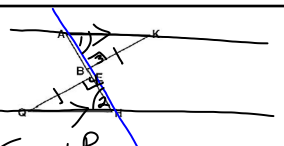
17) Given: $\overline{AK} \parallel \overline{QH}$, $\overline{KB} \perp \overline{AH}$, $\overline{QE} \perp \overline{AH}$, $KB = QE$
Prove: $AK = QH$



S	R
① $\overline{AK} \parallel \overline{QH}$, $\overline{KB} \perp \overline{AH}$, $\overline{QE} \perp \overline{AH}$, $KB = QE$	① Given
② $\angle 1 \cong \angle 2$	② If $\not\rightarrow\not\rightarrow$
③ $\angle 3$ & $\angle 4$ are Rt $\angle$'s	③ $\perp$ lines form Rt $\angle$'s
④ $\angle 3 \cong \angle 4$	④ all rt $\angle$'s are $\cong$
⑤ $\triangle KAB \cong \triangle QHE$	⑤ AAS postulate
⑥ $AK = QH$	⑥ CPCTC

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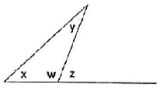
18) Given the labeled diagram at the right, can we prove that $x + y = z$? (or, in other words, that the exterior angle of a triangle equals the sum of the measures of the remote interior angles.)



S	R
① $x + w + y = 180$	① Int. $\angle$'s of a $\triangle$ Sum to 180°
② $w + z = 180$	② linear pairs are Supplementary
③ $x + w + y = w + z$	③ Subst. property
④ $x + y = z$	④ Subtraction postulate

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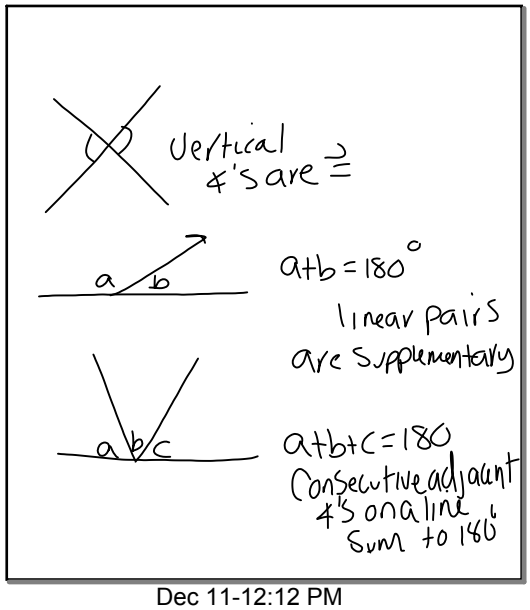

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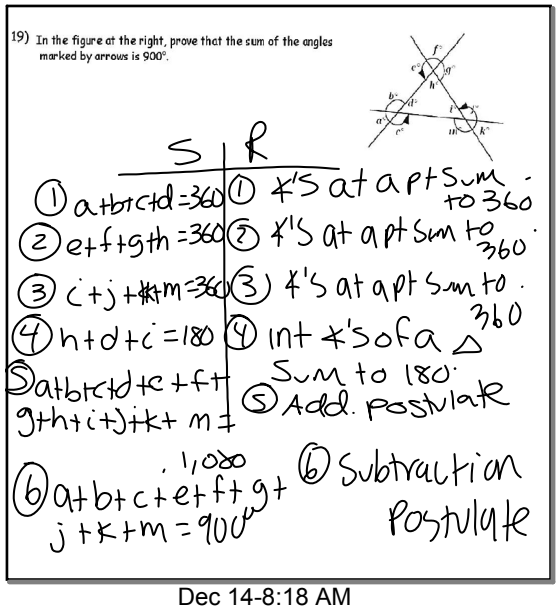

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