UNKNOWN ANGLES REVIEW #2

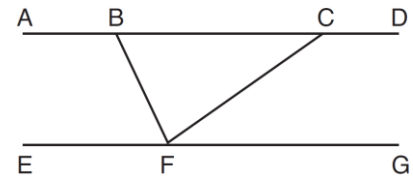1. In the accompanying diagram, line ℓ is parallel to line *m*, and line *t* is a transversal. Which must be a true statement?

   (1) $m\angle 1 + m\angle 4 = 180$ (3) $m\angle 3 + m\angle 6 = 180$

   (2) $m\angle 1 + m\angle 8 = 180$ (4) $m\angle 3 + m\angle 5 = 180$
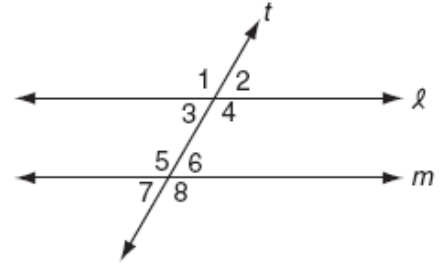
2. Steve drew line segments *ABCD*, *EFG*, *BF*, and *CF* as shown in the diagram below. Scalene $\triangle BFC$ is formed. Which statement will allow Steve to prove $\overline{ABCD} \parallel \overline{EFG}$?

   (1) $\angle CFG \cong \angle FCB$ (3) $\angle EFB \cong \angle CFB$

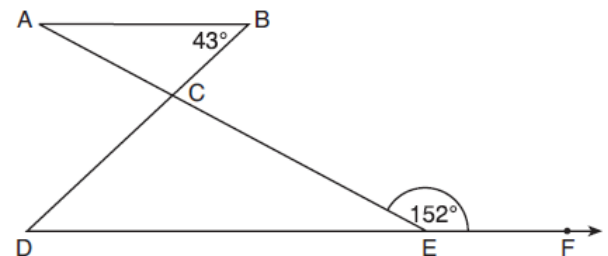   (2) $\angle ABF \cong \angle BFC$ (4) $\angle CBF \cong \angle GFC$

3. Transversal $\overline{EF}$ intersects $\overline{AB}$ & $\overline{CD}$, as shown in the diagram. If $\overline{AB} // \overline{CD}$ which statement can *not* always be proven?

   (1) $\angle 2 \cong \angle 8$
   (2) $\angle 4 \cong \angle 6$
   (3) $\angle 1$ and $\angle 7$ are supplementary
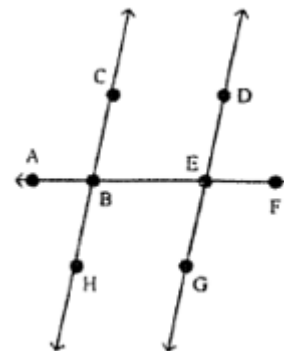   (4) $\angle 4$ and $\angle 5$ are supplementary
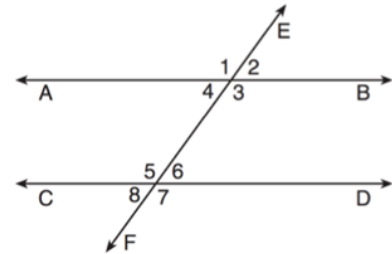
4. In the diagram below, $\overline{AB} \parallel \overrightarrow{DEF}$, $\overline{AE}$ and $\overline{BD}$ intersect at *C*, $m\angle B = 43°$, and $m\angle CEF = 152°$. Which statement is true?

   (1) $m\angle D = 28°$

   (2) $m\angle A = 43°$

   (3) $m\angle ACD = 71°$

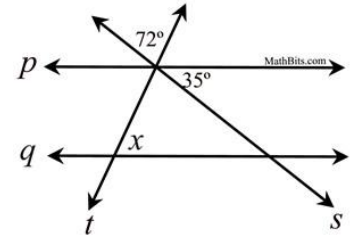   (4) $m\angle BCE = 109°$

5. In the figure shown, $\overrightarrow{HC} \parallel \overrightarrow{GD}$ and $m\angle ABC = 96$. Which of the following statements is false?

   (1) $\angle EBH$ and $\angle FEG$ are corresponding angles
   (2) $m\angle GEF = 96$
   (3) $m\angle CBE = 96$
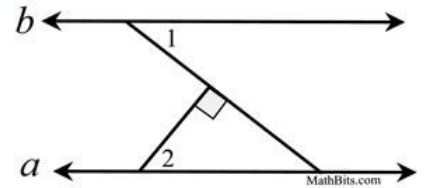   (4) $\angle EBH$ and $\angle DEB$ are alternate interior angles.

6. Given straight lines *p, q, t,* and *s* and angles as marked, which value of *x* will make lines *p* and *q* parallel?

   (1) 73

   (2) 87

   (3) 107

   (4) 113
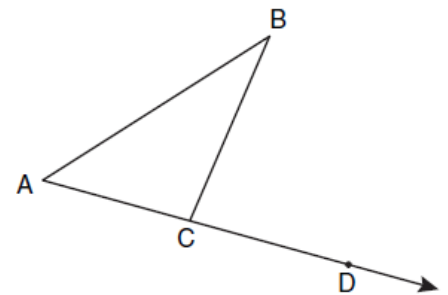
7. Given: *a* || *b* and a perpendicular line segment as shown; Find the number of degrees in $m\angle2$ if $m\angle1 = 3x + 13$ and $m\angle2 = 5x - 3$.
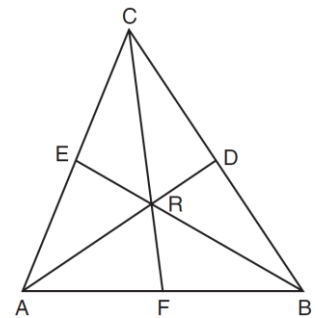
   (1) 34.5

   (2) 47

   (3) 48

   (4) 68

8. In the diagram below, $\triangle ABC$ is shown with $\overline{AC}$ extended through point *D*. If $m\angle BCD = 6x + 2$, $m\angle BAC = 3x + 15$, and $m\angle ABC = 2x - 1$, what is the value of *x*?

   (1) 12

   (2) $14\dfrac{10}{11}$

   (3) 16

   (4) $18\dfrac{1}{9}$

9. In $\triangle ABC$ shown below, medians $\overline{AD}$, $\overline{BE}$, and $\overline{CF}$ intersect at point *R*. If $CR = 24$ and $RF = 2x - 6$, what is the value of *x*?

   (1) 9

   (2) 12

   (3) 15

   (4) 27

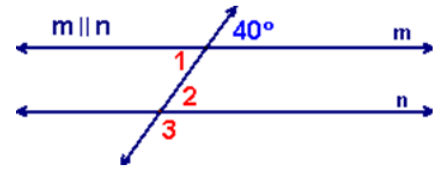10. Given the following constructions of parallel lines. Identify each type of angle relationship.

I.	II.	III.
TYPE OF ANGLᴇ⌝.	TYPE OF ANGLES:	TYPE OF ANGLES.
_____	_____	_____

11.

Solve for the missing angles. $m\angle 1 =$ _____ $m\angle 2 =$ _____ $m\angle 3 =$ _____

$m \parallel n$ $40°$ m

Reasons:

$m\angle 1 =$ _____

$m\angle 2 =$ _____

$m\angle 3 =$ _____

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12. The accompanying diagram shows two parallel streets, Main Street and Brooks Road, intersected by Jay Street. The obtuse angle that Jay Street forms with Brooks Road is three times the measure of the acute angle that Jay Street forms with Main Street. What is the measure of the acute angle formed by Jay Street and Main Street?
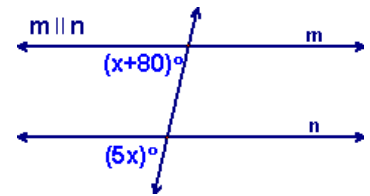
Main Street

Jay Street

Brooks Road
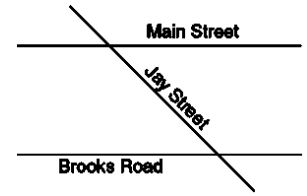
Reason:_____

_____

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13. Solve for the value of x.

$m \parallel n$ m

$(2x-10)°$

$(65-x)°$ n
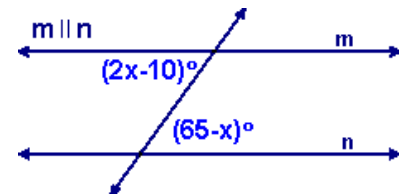
Reason:_____

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14. Solve for the value of x.

$m \parallel n$ m

$(x+80)°$

n

$(5x)°$

Reason:_____

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15. Solve for the value of x.

$m \parallel n$ A

m $(2x+10)°$

B   C

n

$(86+x)°$
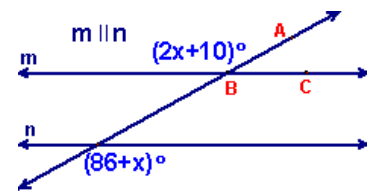
Reason:_____

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16. In the accompany diagram, parallel lines $\overline{AB}\,\&\,\overline{CD}$ are cut by transversal $\overline{DEB}$. If $m\angle CDE = m\angle DEA = 130$, find $m\angle BAE =$
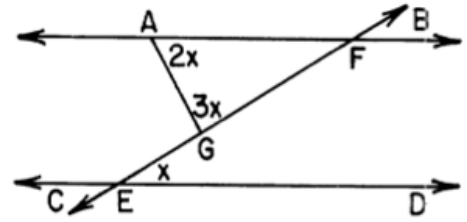
C   D

$130°$

$130°$ E

A   B
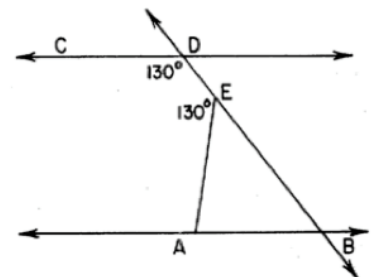
Reason:_____

Reason:_____

Reason:_____

17. In the accompany diagram, $\overleftrightarrow{EGF}$ inersects $\overleftrightarrow{AB}$ & $\overleftrightarrow{CD}$ and $\overline{AG}$ is drawn. If $\overleftrightarrow{AB}\parallel\overleftrightarrow{CD}$,

$m\angle FED = x$, $m\angle GAF = 2x$, $m\angle FGA = 3x$, solve for x.
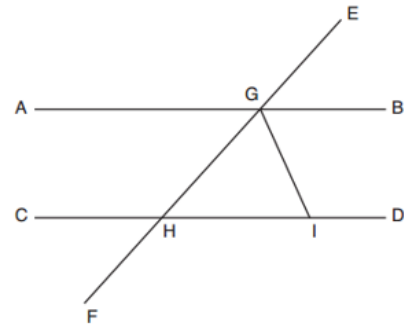
Reason:_____

Reason:_____

18. In the accompanying diagram of $\triangle ABC$, $\overline{BD}\wedge\overline{ACD}$, $\overline{CE}\wedge\overline{AEB}$, and $\overline{CE}$ intersect $\overline{BD}$ at F. If $m\angle BAD = 50$, what is $m\angle BFE$?
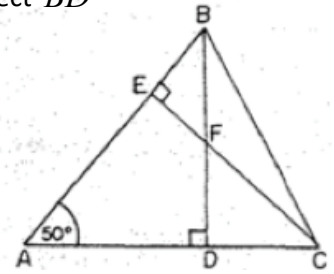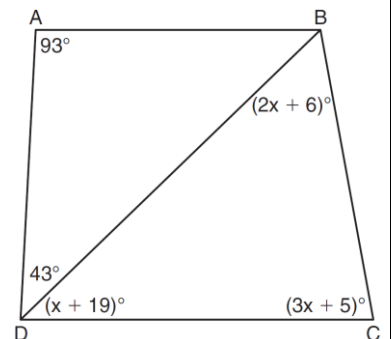
Reason:_____

Reason:_____

19. Given: $m\angle BGI = 41$, $m\angle CHF = 42$ and $\overrightarrow{GB}$ bisects $\angle EGI$; Are the lines parallel? Why or why not?

20. In the diagram below of quadrilateral ABCD with diagonal $\overline{BD}$, $m\angle A = 93$, $m\angle ADB = 43$, $m\angle C = 3x + 5$, $m\angle BDC = x + 19$, and $m\angle DBC = 2x + 6$. Determine if $\overline{AB}$ is parallel to $\overline{DC}$. Explain your reasoning.

Reason:_____

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