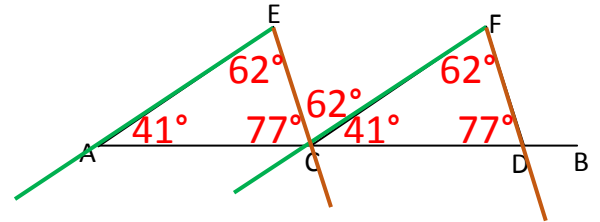
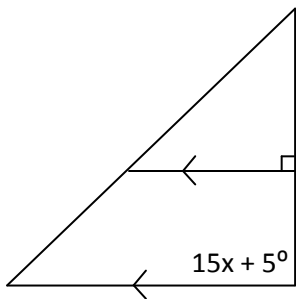


1. If $\overline{AE} \parallel \overline{CF}$, $\overline{CE} \parallel \overline{DF}$, $m\angle E = 62^\circ$, $m\angle A = 41^\circ$. Find each requested angle measure and provide a reason for why you know it. (For example, \parallel lines \rightarrow alt. int. angles \cong or supplementary.)



- a. $m\angle ECF = 62^\circ$ Reason: \parallel lines \rightarrow alt int \angle 's \cong
- b. $m\angle ECA = 77^\circ$ Reason: Δ sum to 180°
- c. $m\angle FCD = 41^\circ$ Reason: \parallel lines \rightarrow corr \angle 's \cong
- d. $m\angle F = 62^\circ$ Reason: \parallel lines \rightarrow alt int \angle 's \cong (twice)
- e. $m\angle D = 77^\circ$ Reason: \parallel lines \rightarrow corr \angle 's \cong
- f. $m\angle FDB = 103^\circ$ Reason: Linear pair thm

2. Solve for x. Reason for Equation: _____



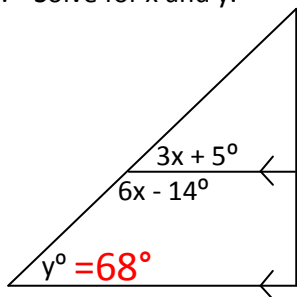
\parallel lines \rightarrow corr \angle 's \cong

$$15x + 5 = 90$$

$$15x = 85$$

$$x = 5\frac{2}{3} = 5.\bar{6}$$

3. Solve for x and y. Reason for Equation with x: _____



Linear pair thm

Reason for y: \parallel lines \rightarrow corr \angle 's \cong

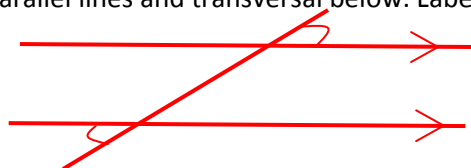
$$3x + 5 + 6x - 14 = 180$$

$$9x - 9 = 180$$

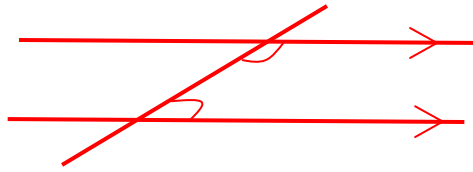
$$9x = 171$$

$$x = 21$$

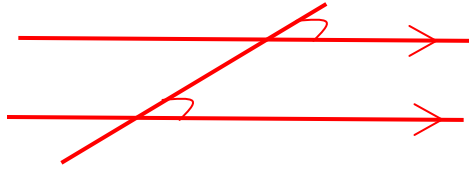
4. Draw a diagram of two parallel lines and transversal below. Label one pair of alternate exterior angles on your diagram.



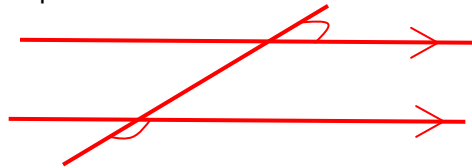
5. Draw a diagram of two parallel lines and transversal below. Label one pair of same-side interior angles on your diagram.



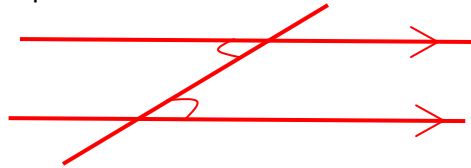
6. Draw a diagram of two parallel lines and transversal below. Label one pair of corresponding angles on your diagram.



7. Draw a diagram of two parallel lines and transversal below. Label one pair of same-side exterior angles on your diagram.

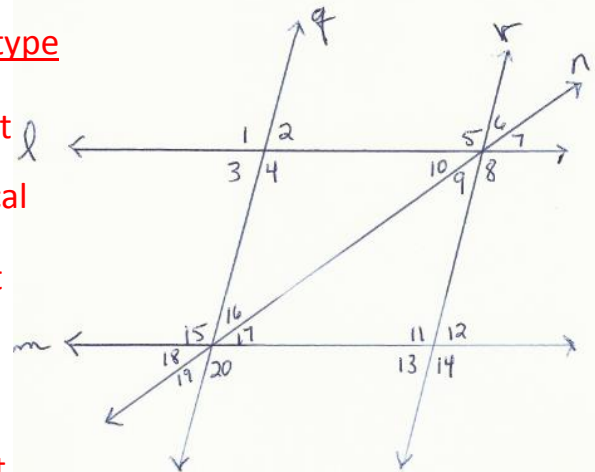


8. Draw a diagram of two parallel lines and transversal below. Label one pair of alternate interior angles on your diagram.

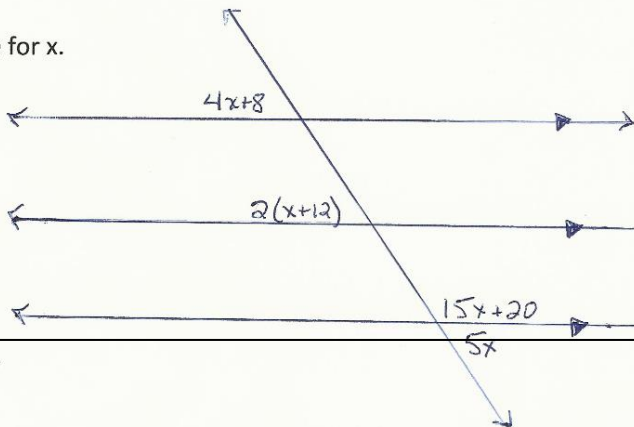


9. Given that $line\ l \parallel line\ m$, and $line\ q \parallel line\ r$, name the two lines that are parallel and the transversal that form each pair of angles. If they aren't formed by parallel lines, write NONE. Then classify the type of angle they are and what is true about the angles.

	<u>parallels</u>	<u>transversal</u>	<u>Angle type</u>
a. $\angle 1$ and $\angle 15$ \cong	l and m	q	corr
b. $\angle 8$ and $\angle 11$ \cong	l and m	r	Alt int
c. $\angle 12$ and $\angle 13$ \cong	l and m	none	vertical
d. $\angle 10$ and $\angle 17$ \cong	l and m	r	Alt int
e. $\angle 3$ and $\angle 15$ supp	l and m	q	ss-int
f. $\angle 5$ and $\angle 14$ \cong	l and m	r	Alt ext



10. Solve for x.



Option 1

$$4x + 8 = 2(x + 12)$$

$$4x + 8 = 2x + 24$$

$$2x = 16$$

$$x = 8$$

Option 2

$$4x + 8 = 5x$$

$$8 = x$$

Option 3

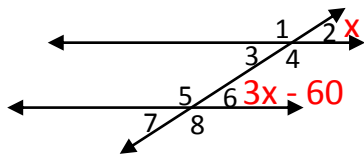
$$5x = 2(x + 12)$$

$$5x = 2x + 24$$

$$3x = 24$$

$$x = 8$$

11. Given $line\ a \parallel line\ b$, $m\angle 2 = x^\circ$, $m\angle 6 = (3x - 60)^\circ$. Find the indicated angle measures.

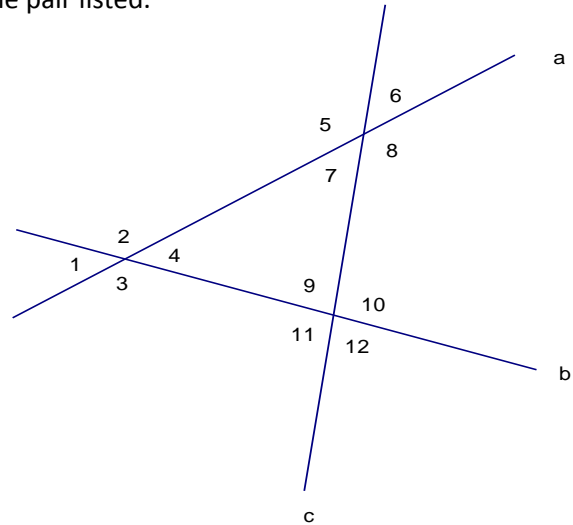


$$\begin{aligned} 3x - 60 &= x \\ 2x &= 60 \\ x &= 30 \end{aligned}$$

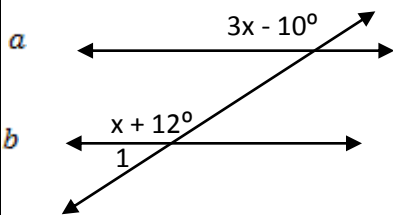
- a. $m\angle 2 = \underline{30^\circ}$ Reason: \parallel lines \rightarrow corr \angle 's \cong b. $m\angle 1 = \underline{150^\circ}$ Reason: Linear pair thm
 c. $m\angle 3 = \underline{30^\circ}$ Reason: vert \angle 's thm d. $m\angle 5 = \underline{150^\circ}$ Reason: \parallel lines \rightarrow corr \angle 's \cong ($\angle 1$)
 e. $m\angle 7 = \underline{30^\circ}$ Reason: \parallel lines \rightarrow alt ext \angle 's \cong ($\angle 2$) f. $m\angle 8 = \underline{150^\circ}$ Reason: Linear pair thm

12. Using the diagram to the right, identify the name for each angle pair listed.

- a. $\angle 9$ and $\angle 8$: Alt int \angle 's
 b. $\angle 9$ and $\angle 4$: ss-int \angle 's
 c. $\angle 2$ and $\angle 6$: corr \angle 's
 d. $\angle 1$ and $\angle 12$: ss-ext \angle 's
 e. $\angle 6$ and $\angle 11$: Alt ext \angle 's
 f. $\angle 9$ and $\angle 10$: Alt int \angle 's
Linear pair
 g. $\angle 2$ and $\angle 3$: vertical \angle 's

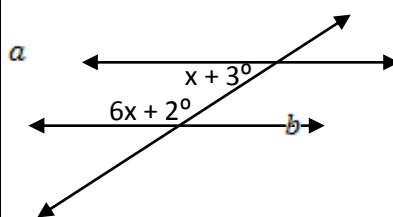


13. Given that $line\ a \parallel line\ b$, solve for x and find $m\angle 1$.



$$\begin{aligned} 3x - 10 &= x + 12 & m\angle 1 &= 180 - 23 = 157^\circ \\ 2x &= 22 \\ x &= 11 \end{aligned}$$

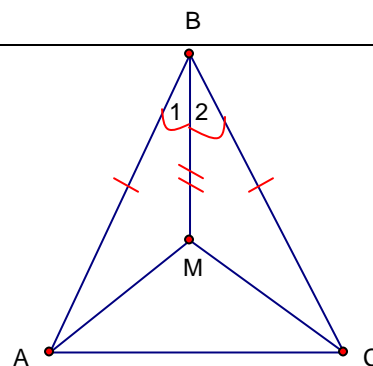
14. Given that $line\ a \parallel line\ b$, solve for x and find the measure of both angles labeled.



$$\begin{aligned} x + 3 + 6 + x &= 180 & x + 3 &= 28^\circ \\ 7x + 5 &= 180 & 6x + 2 &= 152^\circ \\ 7x &= 175 \\ x &= 25 \end{aligned}$$

15. Given: $\overline{AB} \cong \overline{CB}$; \overline{BM} bisects $\angle ABC$

Prove: $\triangle AMC$ is isosceles with base \overline{AC}



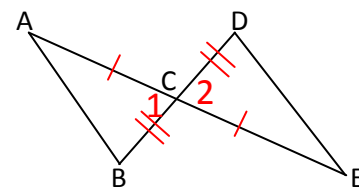
Statements	Reasons
1. $\overline{AB} \cong \overline{CB}$	1. Given
2. \overline{BM} bisects $\angle ABC$	2. Given
3. $\angle 1 \cong \angle 2$	3. Def \angle bisector
4. $\overline{BM} \cong \overline{BM}$	4. Reflexive Prop
5. $\triangle ABM \cong \triangle CBM$	5. SAS
6. $\overline{AM} \cong \overline{CM}$	6. CPCTC
7. $\triangle AMC$ is isosceles with base \overline{AC}	7. Definition of isosceles triangle

16. What does CPCTC stand for?

Corresponding parts of congruent triangles are congruent

17. Given: C is the midpoint of \overline{AE} ; \overline{AC} bisects \overline{DB}

Prove: $\angle A \cong \angle E$



Statements	Reasons
1. C is the midpoint of \overline{AE}	1. Given
2. $\overline{AC} \cong \overline{EC}$	2. def of midpoint
3. \overline{AC} bisects \overline{DB}	3. Given
4. $\overline{DC} \cong \overline{BC}$	4. def of midpoint
5. $\angle 1 \cong \angle 2$	5. Vert \angle 's thm
6. $\triangle ABC \cong \triangle EDC$	6. SAS
7. $\angle A \cong \angle E$	7. CPCTC

