Name: _____Date: _____ Period:_____

Geometry Unit 2 - HOMEFUN

Day 1 – Parallel Lines and Planes

Describe each pair of segments in the prism as parallel, skew, perpendicular, or intersecting.
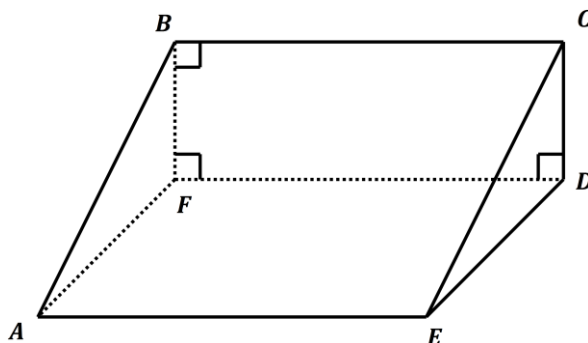
1. $\overline{AF}, \overline{FD}$ _____

2. $\overline{AE}, \overline{FD}$ _____

3. $\overline{AB}, \overline{FD}$ _____

4. $\overline{BC}, \overline{AE}$ _____

5. $\overline{EC}, \overline{BF}$ _____

6. $\overline{BF}, \overline{AB}$ _____
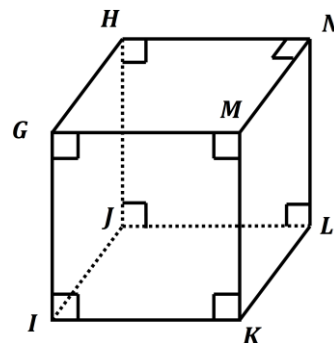
Name the parts of the cube shown at the right.

7. Six planes _____

8. All segments parallel to $\overline{GI}$ _____

9. All segments skew to $\overline{MN}$ _____

10. All segments parallel to $\overline{IK}$ _____
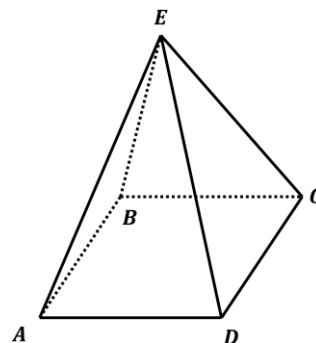
11. All segments skew $\overline{HJ}$ _____

Name the pars of the pyramid shown at the right.

12. A pairs of parallel segments

13. A pairs of skew segments

14. All panes parallel to plane *EDC*

15. All planes that interest to form the line $\overline{BC}$

Draw and Label the following to illustrate each pair.

16. Segments that are NOT parallel or skew

17. Skew rays

18. Intersecting $\cong$ segments

Given the following diagram and given in formation. For 19-33, determine whether the following information is true or false.

$$\overleftrightarrow{AG} \perp \overleftrightarrow{CE}, \ \overleftrightarrow{AC} \perp \overleftrightarrow{BF},$$

point B is the midpoint of $\overline{AC}$

19. $\angle 1 \cong \angle CBD$

20. $\angle 1$ is a right angle.

21. $\angle 2$ and $\angle 3$ are complementary angles.

22. $m\angle GDF + m\angle FDE = 90$

23. $\angle 1 \cong \angle 5$

24. $\overleftrightarrow{AC}$ is the only line $\perp$ to $\overleftrightarrow{BF}$ at B

25. $\angle 3$ is an acute angle

26. $\angle 1 \cong \angle 2$

27. $\angle 2 \cong \angle 6$

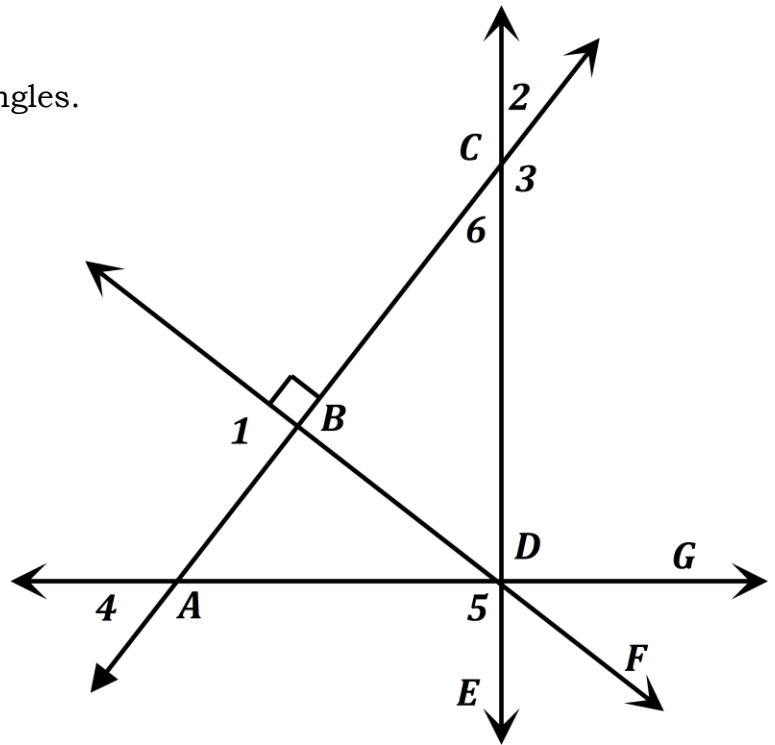28. $\overleftrightarrow{AG}$ is $\perp$ to $\overleftrightarrow{DE}$

29. Name four right angles.

30. Name a pair of supp. Angles.

31. If $m\angle 3 = 120$, find $m\angle 2$

32. Which angle is complementary to $\angle FDE$

33. If $m\angle 6 = 45$, find $m\angle 2$

Use the diagram for 1 – 7 to the right to identify each pair of angles as Alternate Interior, Alternate Exterior, Consecutive Interior, Corresponding, Linear Pair, Vertical Angles, or none.

1. ∠1 and ∠7 _____

2. ∠1 and ∠5 _____

3. ∠8 and ∠6 _____

4. ∠8 and ∠5 _____

5. ∠4 and ∠8 _____

6. ∠4 and ∠5 _____

7. ∠6 and ∠7 _____

State the relationship between angle A and B.

8.

9.

10.

11.

12.

13.
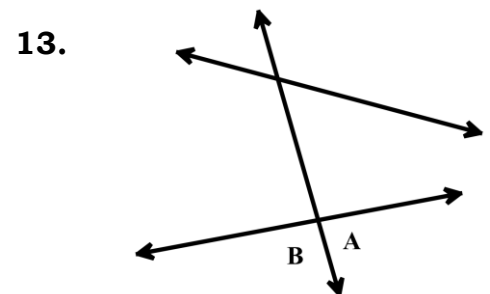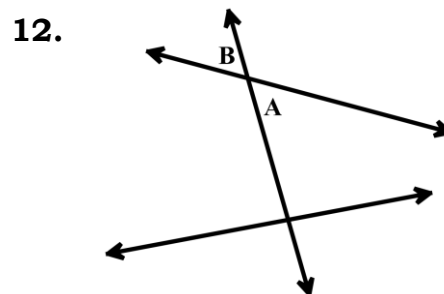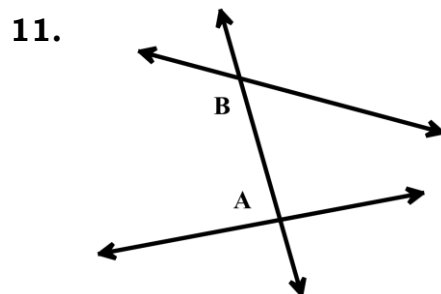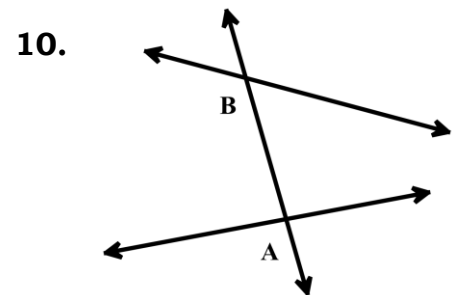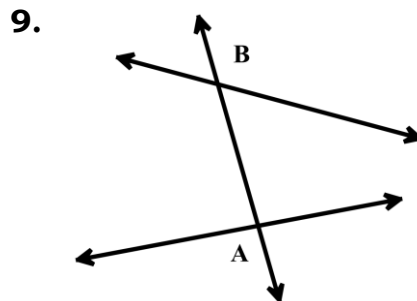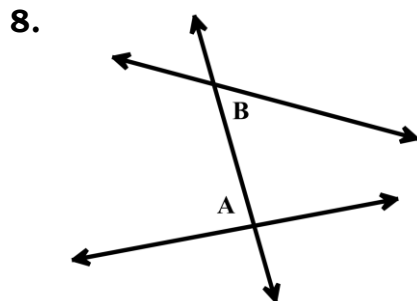
Use the diagram for 14 – 21 to the right to identify each pair of angles as Alternate Interior, Alternate Exterior, Consecutive Interior, Corresponding, Linear Pair, Vertical Angles, or none.
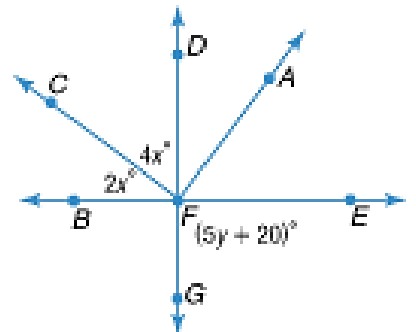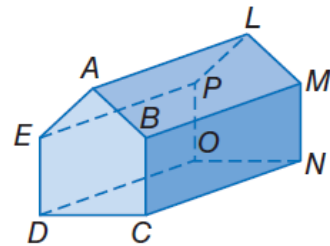
14. ∠9 and ∠11 _____

15. ∠3 and ∠9 _____

16. ∠3 and ∠12 _____

17. ∠14 and ∠16 _____

18. ∠8 and ∠15 _____

19. ∠4 and ∠5 _____

20. ∠1 and ∠7 _____

21. ∠8 and ∠6 _____
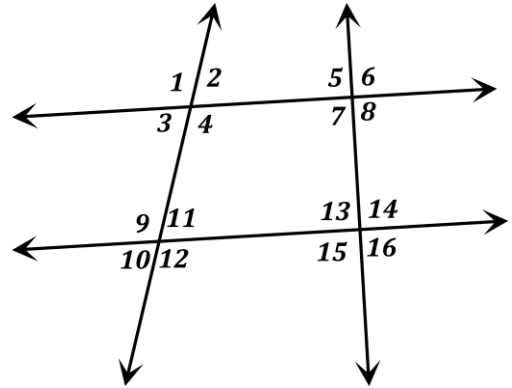
Mixed Review:

Refer to the figure to identify each of the following.

1. all segments parallel to $\overline{AE}$

2. all planes intersecting plane BCN

3. all segments skew to $\overline{DC}$

4. **Find x and y so that $\overline{DG}$ and $\overline{BE}$ are perpendicular.**

5. **Determine whether each statement can be assumed from the figure. Explain.**

a. ∠BFC and ∠AFG are complementary.

b. ∠DFA and ∠AFG are a linear pair.

c. ∠DFC and ∠BFC are complementary.
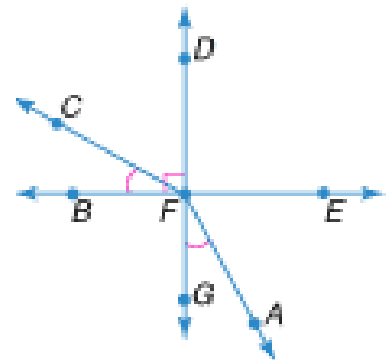
Day 3 – Parallel Lines Cut by a Transversal

Complete the statement with Alternate Interior, Alternate Exterior, Consecutive Interior, Corresponding, Linear Pair, Vertical Angles, or none.
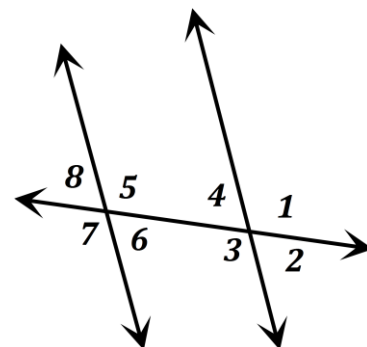
1 $\angle 3$ and $\angle 7$ are _____ angles.

2. $\angle 4$ and $\angle 5$ are _____ angles.

3. $\angle 2$ and $\angle 8$ are _____ angles.

4. $\angle 1$ and $\angle 6$ are _____ angles.

5. $\angle 4$ and $\angle 6$ are _____ angles.
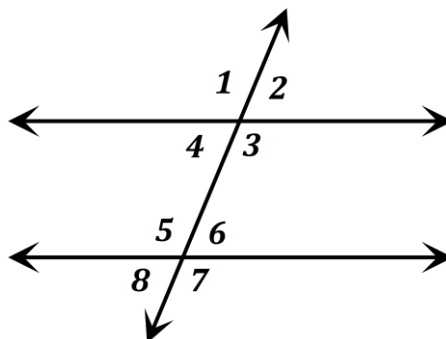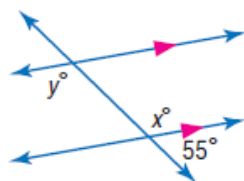
1. _____

2. _____

3. _____

4. _____

5. _____

In the figure, $m\angle 1 = 94^{\circ}$, find the measure of each angle and state which theorems you used.

6. $m\angle 7 =$ _____$^{\circ}$ because of _____

7. $m\angle 5 =$ _____$^{\circ}$ because of _____

8. $m\angle 3 =$ _____$^{\circ}$ because of _____

9. $m\angle 2 =$ _____$^{\circ}$ because of _____

10. $m\angle 8 =$ _____$^{\circ}$ because of _____
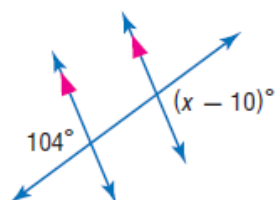
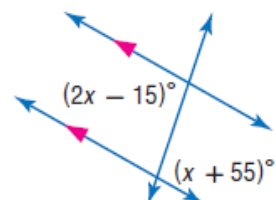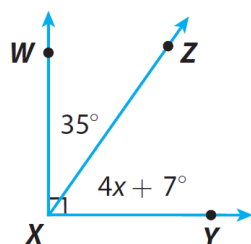Find the value of the variable(s) in each figure. Explain your reasoning.

11.

$y°$

$x°$
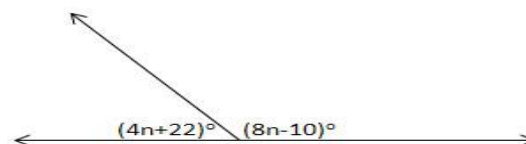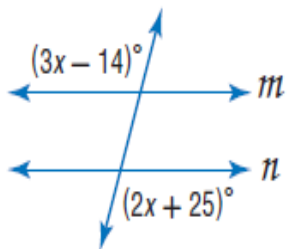
$55°$

12.

$104°$

$(x - 10)°$

13.

$(2x - 15)°$

$(x + 55)°$

14.

W · · Z

$35°$

$4x + 7°$

X   Y

15.

$(4n+22)°$ $(8n-10)°$

16.

$(3x - 14)°$

m

n

$(2x + 25)°$

17.

$(5x - 20)°$

m

n

18.

m

n

$(21 + 2x)°$

$(x + 84)°$
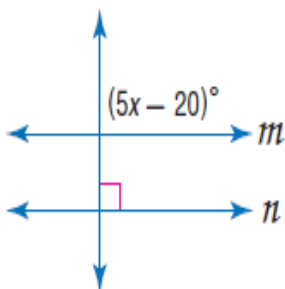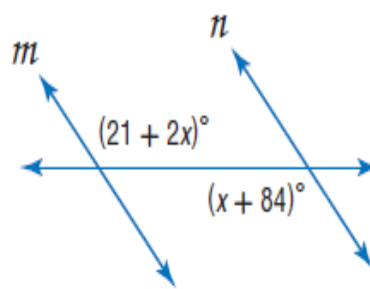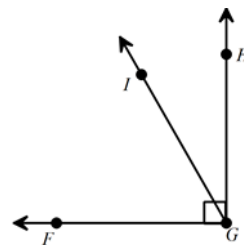
19. Draw two lines and a transversal such that ∠1 and ∠2 are alternate interior angles, ∠2 and ∠3 are corresponding angles, and ∠3 and ∠4 are alternate exterior angles. What type of angle pair is ∠1 and ∠4?

<u>Mixed Review:</u>
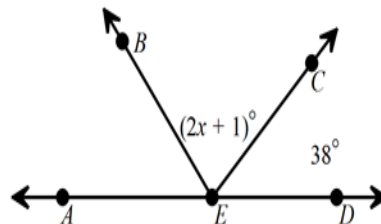
Excluding straight angles, how many angles are shown in the figure?
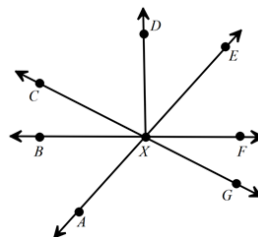
In the figure $m∠FGI = (2x + 9)°$ and $m∠HGI = (4x - 15)°$. Find $m∠FGI$.
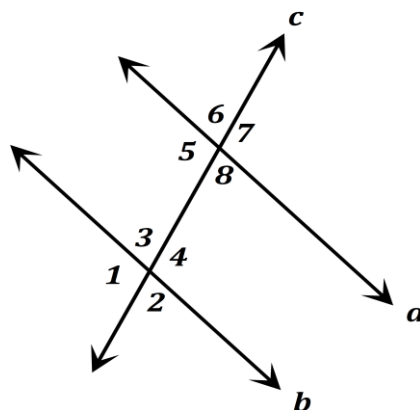
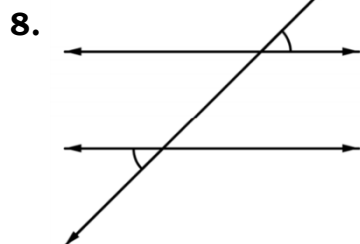$\overrightarrow{EB}$ is the angle bisector of ∠AEC. What is the value of x?

$(2x + 1)°$

$38°$

Day 4 – Proving Lines Parallel

Use the diagram for 1 – 7 to the right to identify each pair of angles as Alternate Interior, Alternate Exterior, Consecutive Interior, Corresponding, Linear Pair, Vertical Angles, or none.

1. ∠1 and ∠7 _____

2. ∠1 and ∠5 _____

3. ∠8 and ∠6 _____

4. ∠8 and ∠5 _____

5. ∠4 and ∠8 _____

6. ∠4 and ∠5 _____

7. ∠2 and ∠8 _____

In each example, determine if the lines are parallel or not. Explain why or why not.

8.

_____

_____

9.

100°
80°

_____

_____

10.

82°
102°

_____

_____

11.

120°
120°

_____

_____

12.

85°
95°

_____

_____

13.

_____

_____

14.

_____

_____

15.

48° 132°

_____

_____

16.

134°

134°

_____

_____
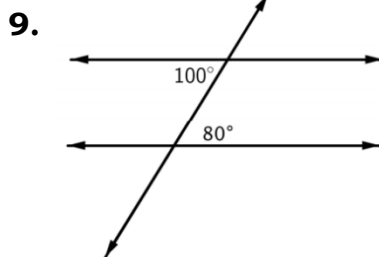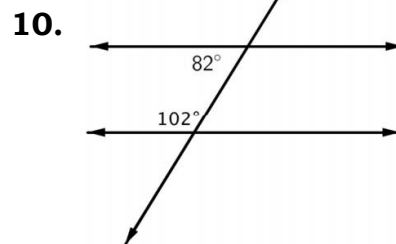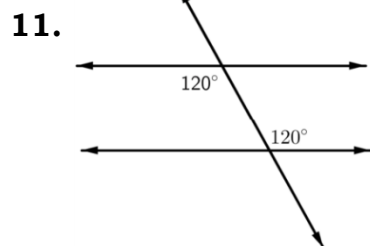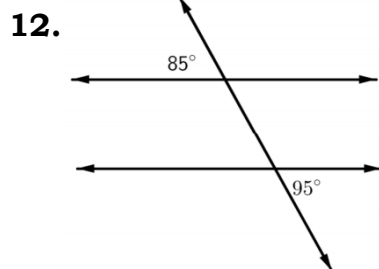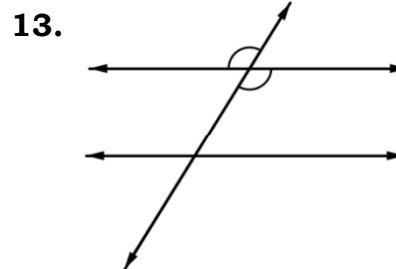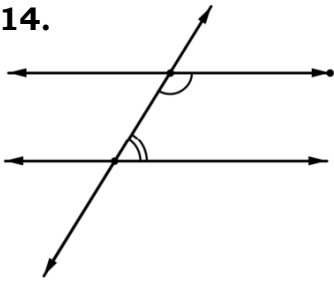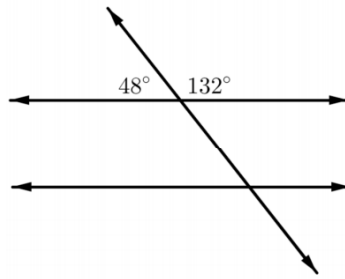
17. Given $\angle 1 \cong \angle 2$, is $\overline{AB} \parallel \overline{CD}$? Why or why not?
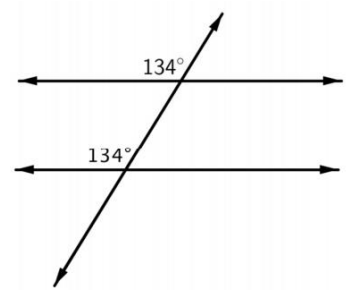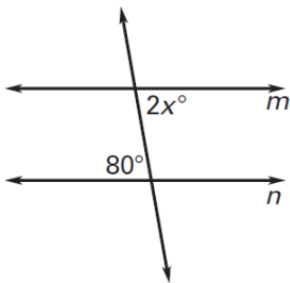
A
1
B
C
2
D

_____

_____
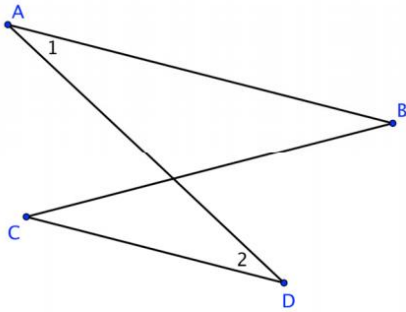
18. Given: $\angle 1 \cong \angle 2, \angle 3 \cong \angle 4$
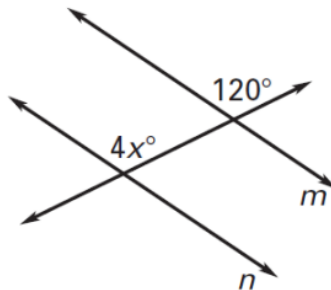Prove: $\overline{AB} \parallel \overline{CD}$

A
1
B   2 E   D
3
4
C

_____

_____
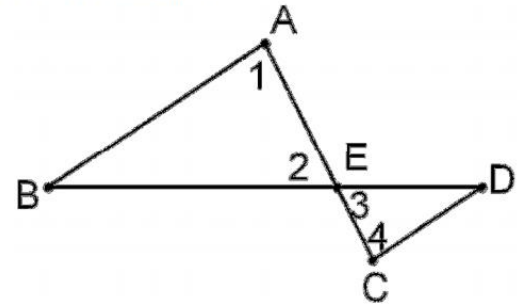
Find the value of x that makes $m \parallel n$.

19.

2x°   m
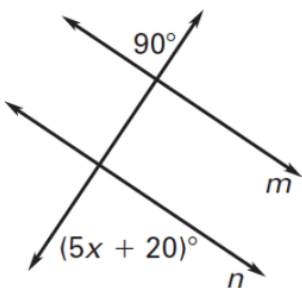
80°

n

20.

120°

4x°

m

n

21.

m

(3x + 15)°   n

75°

22.

90°

m

(5x + 20)°

n
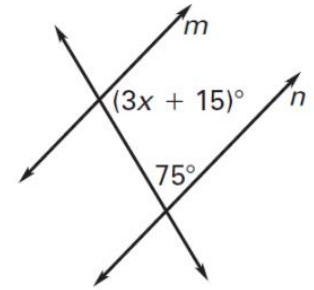
23. Which two lines are parallel?

b
a
c

110°   65°   d
60°

e
120°

r   s

80°

75°   t

105°

u

105°   v
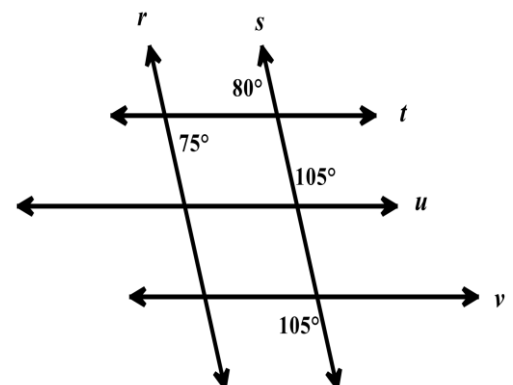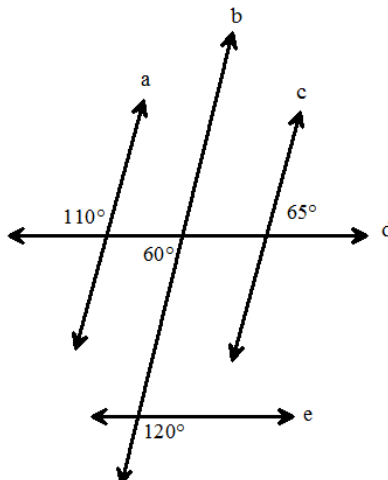
24. Carlos constructed 3 parallel lines as part of an art project. He also drew a line passing through each of them. Some of the angles formed by the intersection of line t, l, m, and n are numbered below. Select all of the conjectures that are correct.

a. Angles, 1, 2, and 3 are congruent.

b. Angles 1, 3, and 5 are congruent.

c. Angles 2, 4, and 6 are congruent.

d. Angles 2, and 4 are supplementary.

e. Angles 5, and 6 are supplementary.

f. Angles 2, and 3 are supplementary.
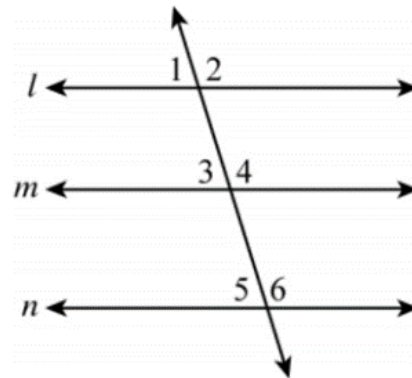
25. Given the following diagram and $a||b$, solve for the variables.
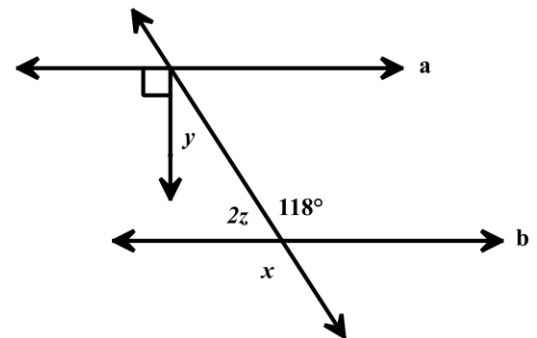
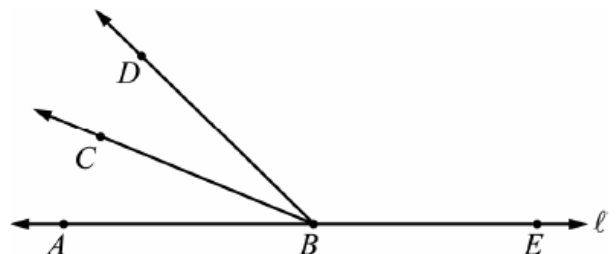

Mixed EOC Review:

1. Planes P and R are parallel, and line ℓ is in plane R. Which of the following is true?

A   Every line that is perpendicular to ℓ intersects plane P.
B   Every line in plane P is parallel to ℓ.
C   No line in plane P is skew to ℓ.
D   No line in plane P intersects line ℓ.

2   In the figure below, $\overrightarrow{BC}$ bisects $\angle ABD$, and A, B, and E are all points on line ℓ.

Which angles must be congruent?

A $\angle ABC$ and $\angle CBD$
B $\angle ABC$ and $\angle CBE$
C $\angle ABD$ and $\angle DBE$
D $\angle CBD$ and $\angle ABD$

3. Michael used a compass and a ruler to construct two parallel lines and a transversal. Which of the following statements is a conjecture that Michael can make about the angles formed by the parallel lines and the transversal.

   a. Pairs of same side interior angles are supplementary.
   b. Pairs of alternate interior angles are supplementary.
   c. Pairs of alternate exterior angles are supplementary.
   d. Pairs of corresponding angles are supplementary.

4. In the drawing below, line h is parallel to line k.
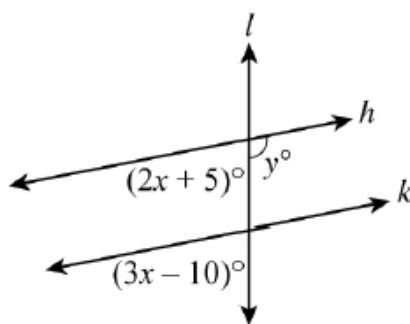
   What is the value of y?

   a.   135   b.   15   c.   35   d.   145