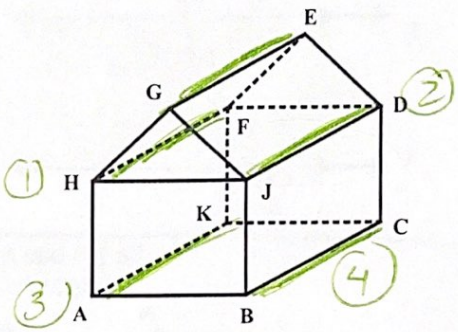
Name Key Period: _____ Date: _____

Geometry – Unit 3 Review

Multiple Choice

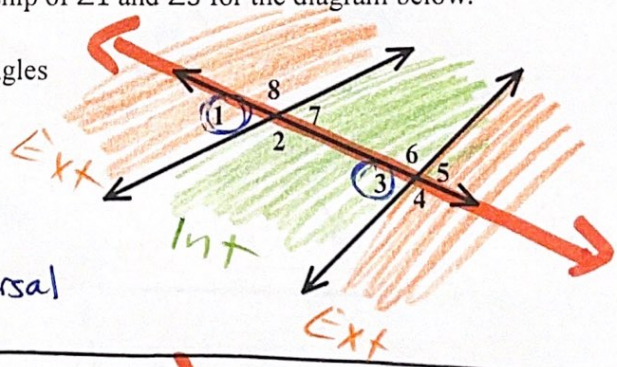
1. Determine how many segments are parallel to $\overline{GE}$?



A. 0
B. 1
C. 2
D. 3
E. 4
F. 5
G. 6
H. 7

---

2. Which of the following best explains the angle relationship of ∠1 and ∠3 for the diagram below.

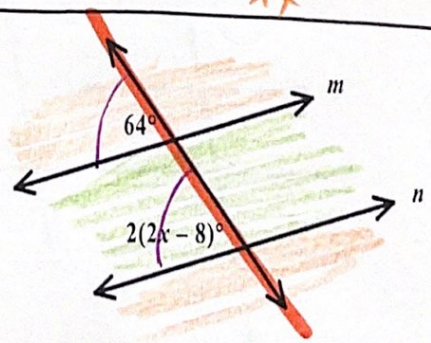


A. Corresponding Angles
B. Alternate Interior Angles
C. Consecutive Interior Angles
D. Consecutive Exterior Angles
E. Alternate Exterior Angles
F. Linear Pair
G. Vertical Angles
H. None of the Above

Same side of transversal & one is inside & outside

---

3. In the figure to the right, $n||m$, find the value of x



A. $x = 18°$
B. $x = 20°$
C. $x = 36°$
D. $x = 64°$

Corresponding is so =

$2(2x-8)=64$

$4x-16=64$

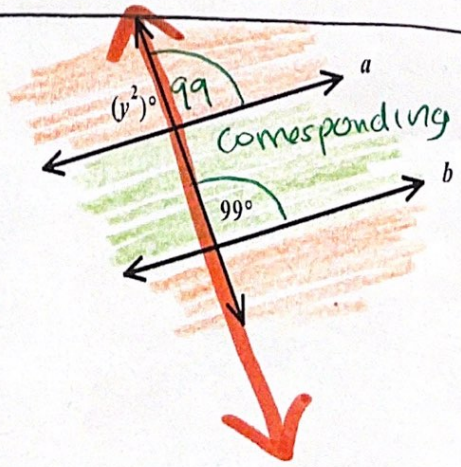
$+16 \quad +16$

$\frac{4x}{4}=\frac{80}{4}$

$x=20$

---

4. In the figure to the right, $a||b$, find the value of y



A. $y = -9$
B. $y = 9$
C. $y = \pm 9$
D. $y = \pm 3\sqrt{11}$

y^2 & 99 are neighbors so supp.

$y^2+99=180$

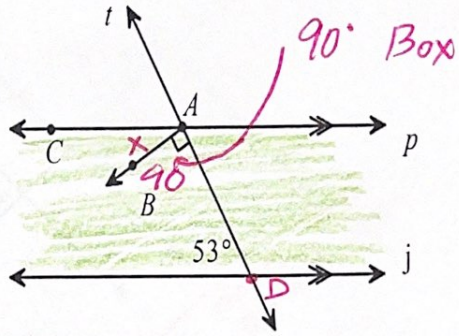
$-99 \quad -99$

$\sqrt{y^2}=\sqrt{81}$

$y \quad y \quad 9 \quad 9$

$y=\pm 9$

5. In the diagram below, line p is parallel to line j and line t is perpendicular to $\overrightarrow{AB}$. What is the measure of $\angle BAC$?



A. $m\angle BAC = 37°$ **C.** $m\angle BAC = 45°$
B. $m\angle BAC = 53°$ **D.** $m\angle BAC = 127°$

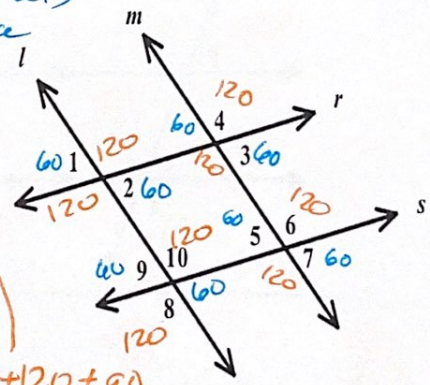
$\angle CBD$ & $\angle 53°$ are Consecutive Int (supp)

$\underbrace{x+90}_{\text{make up angle CBD}} + 53 = 180$

$x + 143 = 180$
$-143 \quad -143$
$x = 37°$

6. Based on the figure below, select **all** statements at are true if $l \parallel m$ and $r \parallel s$?

Pick some numbers & check so lets make $m\angle 1 = 60°$



A. $m\angle 1 = m\angle 5$ **D.** $m\angle 6 + m\angle 9 = 180°$
B. $m\angle 2 + m\angle 3 = 180°$ **E.** $m\angle 1 + m\angle 9 = 180°$
C. $m\angle 4 = m\angle 8$ **F.** $m\angle 2 + m\angle 10 = 90°$

$60 = 60$

$120 = 120$

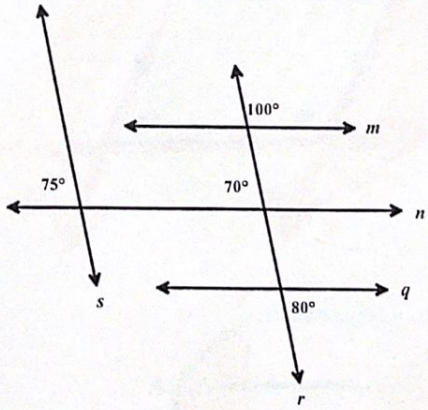
$60 + 60 \neq 180$

$120 + 60 = 180$

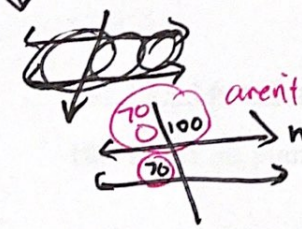
$60 + 60 \neq 180$

$60 + 120 \neq 90$

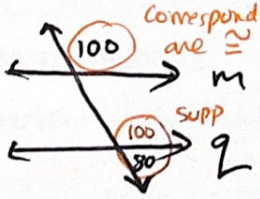
7. Which statement is true based on the figure



A. $m \parallel n$ **C.** $n \parallel q$
B. $m \parallel q$ **D.** $s \parallel r$



aren't supp so doesn't work

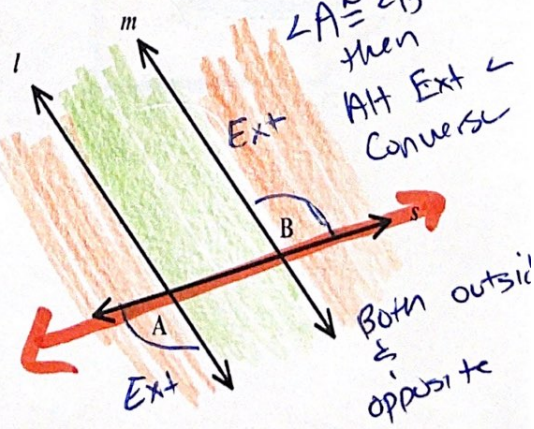


Corresponding are ≅

supp

8. Assuming that $A \cong B$, which of the following is a reason why $l || m$?

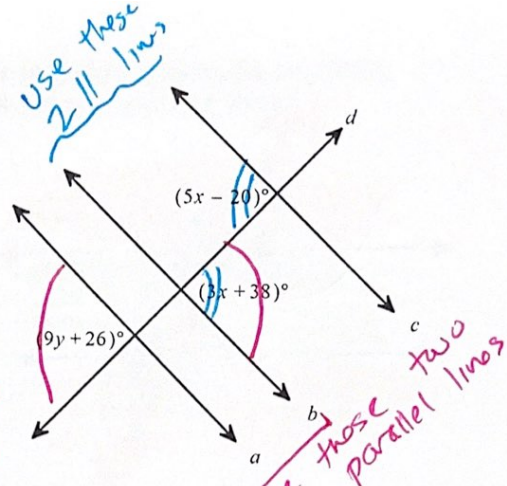
A. Corresponding Angles Converse
B. Alternate Interior Angles Converse
C. Consecutive Interior Angles
D. Consecutive Exterior Angles Converse
E. Alternate Exterior Angles Converse
F. Linear Pair Converse
G. Vertical Angles Converse
H. None of the Above



$\angle A \cong \angle B$ then Alt Ext ∠ Converse

Both outsi & opposite

9. Solve for x and y so that $a \parallel b \parallel c$.



use these 2 ∥ lines

use these two parallel lines

A. $x = 5.8$	**E.** $y = 3.2$
B. $x = 9$	**F.** $y = 9.9$
C. $x = 22$	**G.** $y = 10.1$
D. $x = 29$	**H.** $y = 11.0$

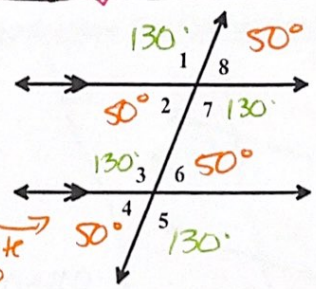
Alt Int∠ & ≅

$5x - 20 = 3x + 38$
$-3x \quad -3x$
$2x - 20 = 38$
$+20 \quad +20$
$2x = 58 \quad x = 29$

Alt Ext ∠'s are ≅

$9y + 26 = 3x + 38$
$9y + 26 = 3(29) + 38$
$9y + 26 = 87 + 38$
$9y + 26 = 125$
$9y = 99 \quad y = 11$

10. Which angles are congruent to ∠4? Select **all** that apply.

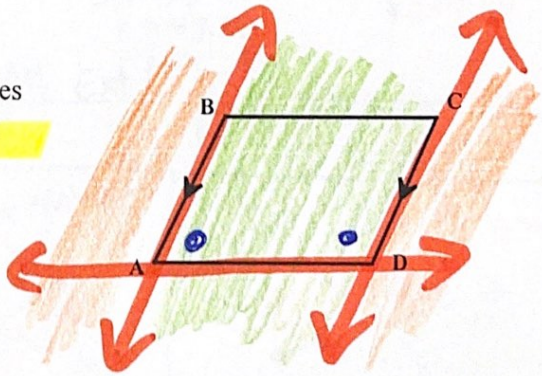


A. ∠1	**D.** ∠5
B. ∠2	**E.** ∠6
C. ∠3	**F.** ∠7

pick a number & plug it in

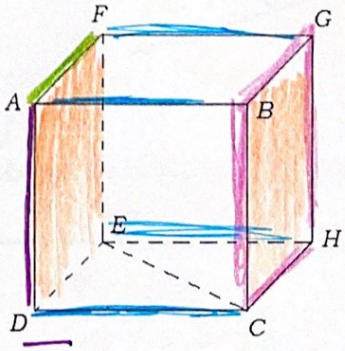
acute 50

11. Name the angle relationship of ∠A and ∠D.



A. Alternative Exterior	**C.** Corresponding Angles
B. Alternative Interior	**D.** Consecutive Interior

For 12 – 16, refer to the figure on the right.



12. Name all planes that are parallel to plane AEF.

plane BGHC

13. Name all segments that intersect $\overline{AF}$.

$\overline{DA}, \overline{AB}, \overline{FE}, \overline{FG}$

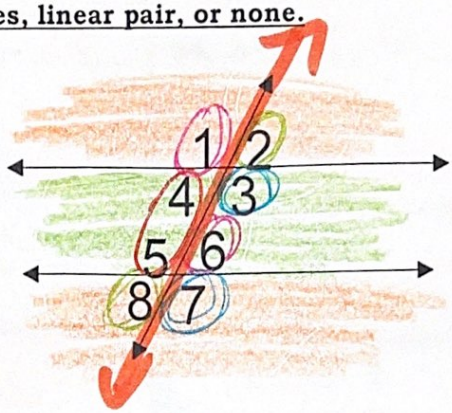
14. Name all segments that are parallel to $\overline{DC}$.

$\overline{EH}, \overline{AB}, \overline{FG}$

15. Name all segments that are skew to $\overline{AD}$. $\overline{FG}, \overline{EH}, \overline{BG}, \overline{HC}$

16. Plane BGCH is parallel to plane AFED

For 17 – 21, complete the statement with alternate interior, alternate exterior, corresponding, consecutive interior, vertical angles, linear pair, or none.



17. ∠3 and ∠7 are Corresponding angles.

18. ∠4 and ∠5 are Consecutive Interior angles.

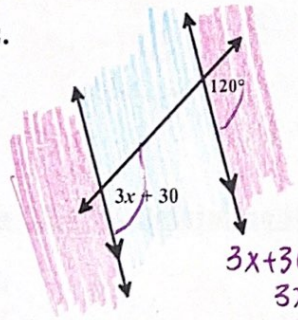
19. ∠2 and ∠8 are Alternate Exterior angles.

20. ∠1 and ∠6 are none angles.

21. ∠4 and ∠6 are Alternate Interior angles.

For 22 – 27, state the angle relationship of the following, and solve for the variable.

22.

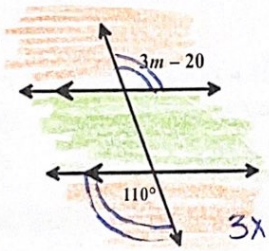


3x+30=120
3x=90
x=30

Angle Relationship: Corresponding (≅)

$x =$ 30

23.

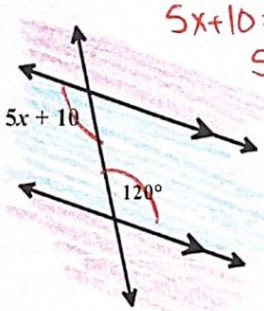


3x-20=110
3x=130
x=43.3

Angle Relationship: Alt Ext (≅)

$m =$ 43.3

24.

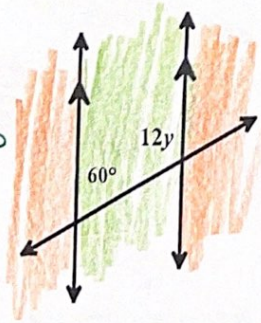


5x+10=120
5x=110
x=22

Angle Relationship: Alt Int (≅)

$x =$ 22

25.

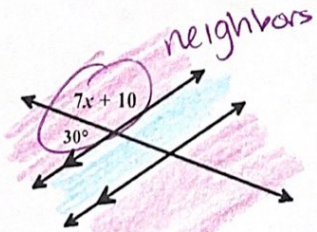


60+12y=180
12y=120
y=10

Angle Relationship: Consec Int (supp)

$y =$ 10

26.



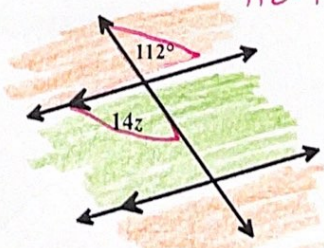
neighbors

30+7x+10=180
7x+40=180
7x=140
x=20

Angle Relationship: Linear Pair (supp)

$x =$ 20

27.

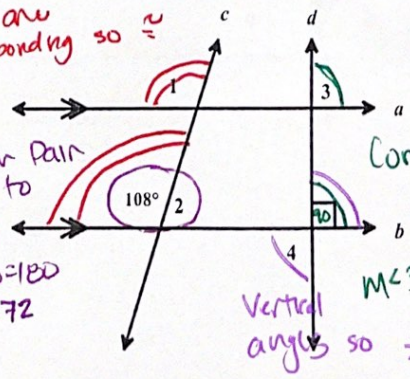


112=14z

Angle Relationship: Vertical ∠'s (≅)

$z =$ 8

For 28 – 31, use the figure to the right and that $a \| b$



Red ∠'s are corresponding so ≅

Linear Pair add to 180

M∠2+108=180
M∠2=72

Corresponding so ≅

M∠3=90

Vertical angles so ≅

28. $m\angle 1 =$ 108

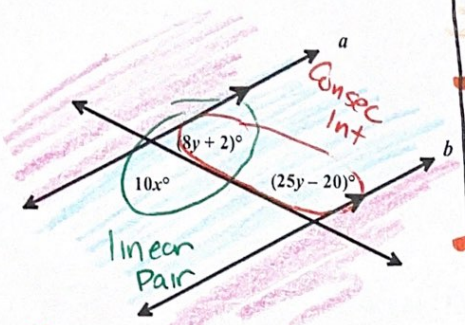
29. $m\angle 2 =$ 72°

30. $m\angle 3 =$ 90°

31. $m\angle 4 =$ 90°

For 32 – 34, find the following.

32. x= 13 y= 6



$8y+2+25y-20=180°$

$33y-18=180$

$33y=198$

$y=6$

$10x+8y+2=180$

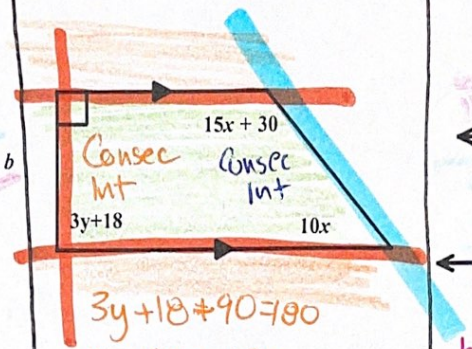
$10x+8(6)+2=180$

$10x+50=180$

$10x=130$

$x=13$

33. x= 6 y= 24



$3y+18+90=180$

$3y+108=180$

$3y=72$

$y=24$

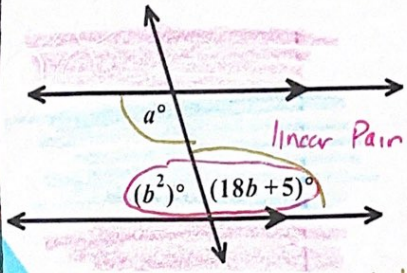
$15x+30+10x=180$

$25x+30=180$

$25x=150$

$x=6$

34. a= 131° b= 7



$b^2+18b+5=180$

$b^2+18b-175=0$

-175

25 -7

18

$(b+25)(b-7)=0$

$b+25=0$ $b-7=0$

$b=-25$ $b=7$

Doesn't work

Alt Int ∠s ≅

$a=18b+5$

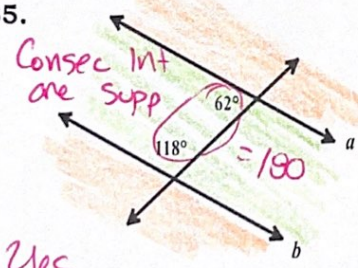
$a=18(7)+7$

$a=124+7$

$a=131$

For 35 – 40, determine if $a \| b$; if so, explain why they are parallel.

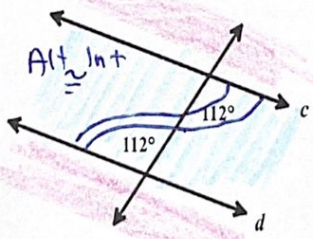
35.



Yes

Consecutive Interior Converse

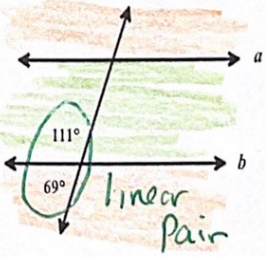
36.



Yes

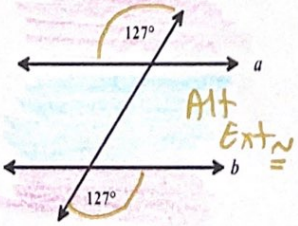
Alt Int Converse

37.



Not Enough Info

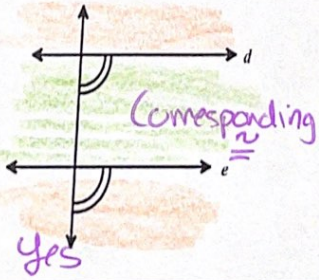
38.



Yes

Alt. Ext. Converse

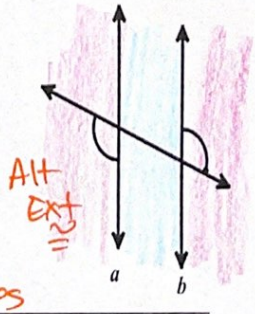
39.



Yes

Corresponding Converse

40.



Yes

Alt. Ext. Converse