

Do Now:

Directions: Using the word bank provided, fill in the blank with the appropriate word(s).

Supplementary	Complementary	Vertical
Alternate Interior	Point	Linear Pair
Corresponding	180°	

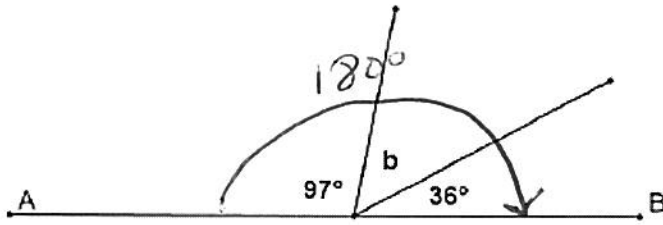
- 1) The sum of the three angles of a triangle is 180° .
- 2) Vertical angles are two non - adjacent angles formed by intersecting lines.
- 3) Alternate Int. angles are angles on opposite sides of the transversal and inside the parallel lines.
- 4) Two angles that form a linear Pair are supplementary.
- 5) Complementary angles have a sum of 90° .
- 6) Angles on the same side of the transversal and in the same position with respect to the parallel lines are called Corresponding angles.
- 7) Supplementary angles have a sum of 180° .
- 8) Adjacent angles at a point have a sum of 360° .

STOP HERE!!

Guided Practice:

Directions: Determine the measure of the missing angle in each diagram. State the geometric reason for each step.

1)



$$97 + b + 36 = 180$$

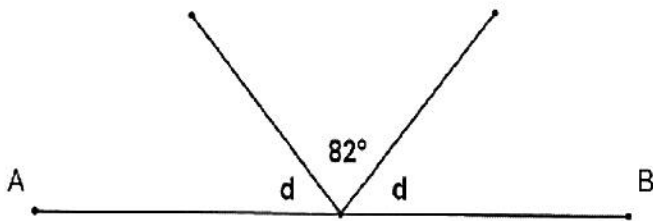
$$b = 47$$

$$m\angle b = 47^\circ$$

Reason: Consecutive Adj

∠'s on a line sum
to 180°

2)



$$82 + d + d = 180$$

$$82 + 2d = 180$$

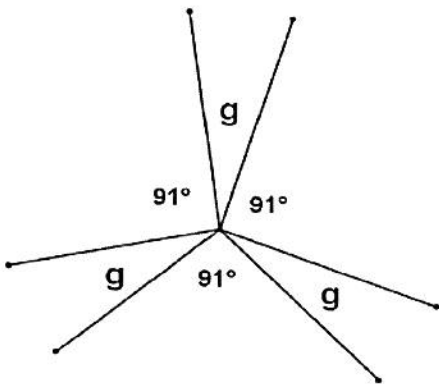
$$d = 49$$

$$m\angle d = 49^\circ$$

Reason: Consecutive adj.

∠'s on a line sum to
180°

3)



$$91 + 91 + 91 + 3g = 360$$

$$273 + 3g = 360$$

$$3g = 87$$

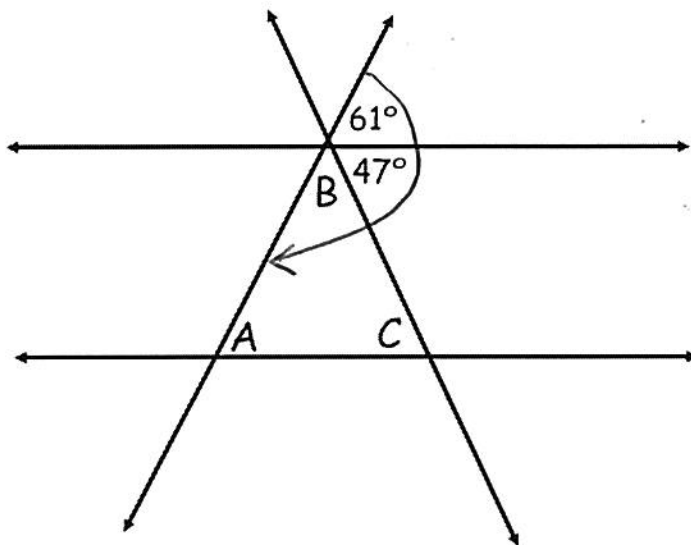
$$g = 29$$

$$m\angle g = 29^\circ$$

Reason: ∠'s at a pt

sum to 360°

4) Triangle ABC is formed by two parallel lines and two other intersecting lines. Determine the measure of each angle of the triangle. State the geometric reason for each step.

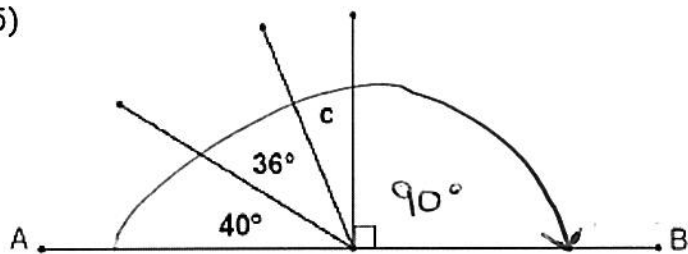


Angle	Angle Measure	Reason
$\angle A$	61°	If 2 // lines are cut by a transversal then the corresponding \angle 's are = in measure
$\angle B$	72°	consecutive adj \angle 's on a line sum to 180°
$\angle C$	47°	The three \angle 's of a \triangle sum to 180°

Partner Practice:

Directions: Determine the measure of the missing angle in each diagram. State the geometric reason for each step.

5)



$$40 + 36 + c + 90 = 180$$

$$c = 14^\circ$$

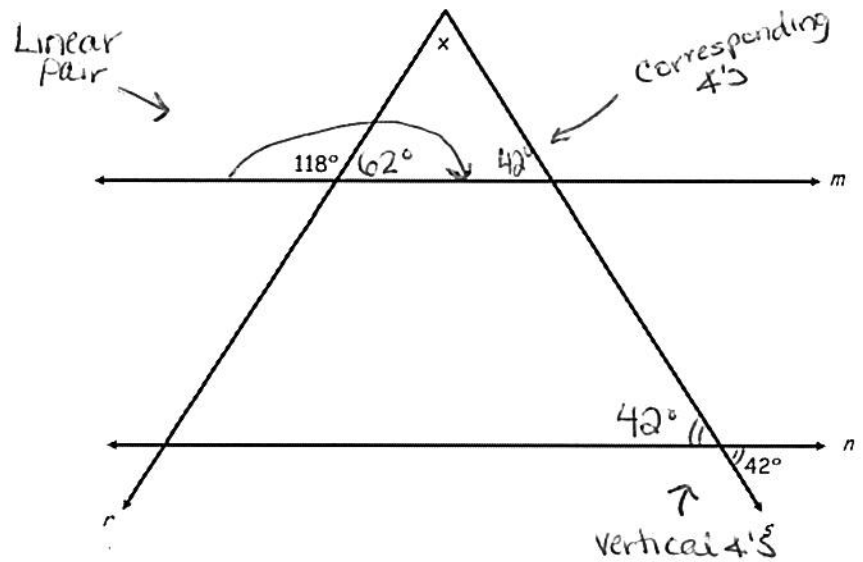
$$m\angle c = \underline{14^\circ}$$

Reason: Consecutive adj \angle 's
on a line sum to 180°

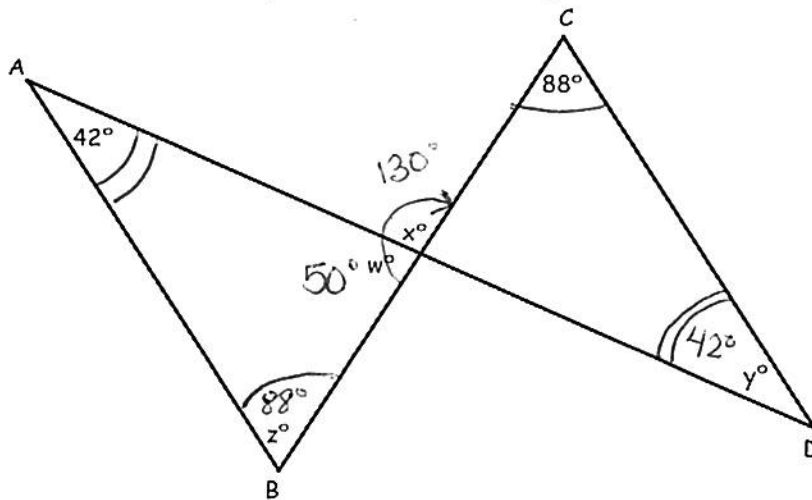
6) In the diagram below, line m and line n are parallel. Line r and line s are transversals. Find the measure of the angle labeled with x . State the geometric reason for each step.

$$62 + 42 + x = 180$$

$$x = 76^\circ$$

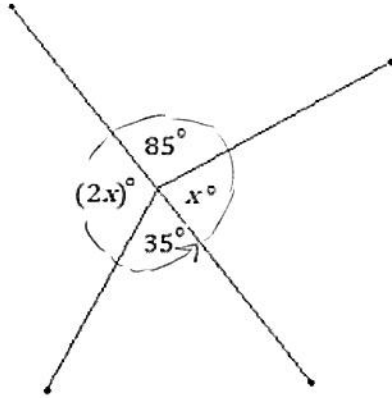


7) In the diagram line segments AB and CD are parallel. Line segments AD and CB intersect. Determine the values of w , x , y , and z . State the geometric reason for each step.



Angle	Angle Measure	Reason
$\angle w$	50°	Angles in a triangle sum to 180°
$\angle x$	130°	Linear pairs are supplementary
$\angle y$	42°	if 2 // lines are cut by a trans. then alt. int. \angle 's are = in measure
$\angle z$	88°	if 2 // lines are cut by a trans. then alt. int. \angle 's are = in measure

1) Determine the value of x in the diagram below.



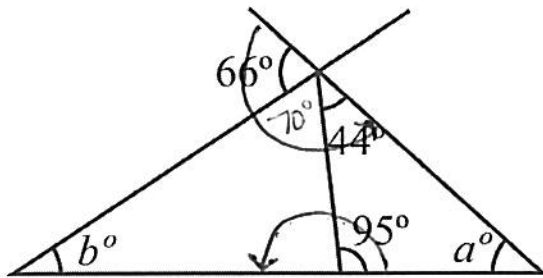
$$x = 80^\circ$$

$$2x + x + 85 + 35 = 360$$

Angles at a point
Sum to 360°

x = 80°

2) Find the values of a and b in the following figure. Give reasons for your calculations.



① $2a = 41^\circ$

$$44 + 95 + a = 180$$

Angles in a triangle sum to 180°

② $66 + 44 + ? = 180$

$$? = 70^\circ$$

consecutive adj \angle 's on a line sum to 180°

③ $95 + ? = 180$

$$? = 85$$

Linear Pairs are supplementary

④ $70 + 85 + b = 180^\circ$

$$4b = 25^\circ$$

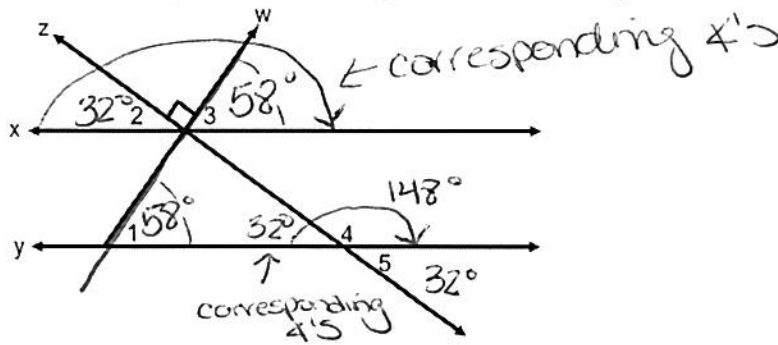
Angles of a Δ
Sum to 180°



OVER

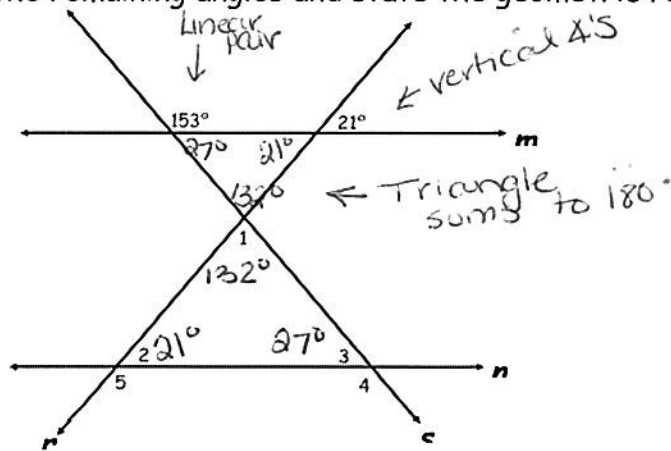
3) Parallel lines x and y are cut by transversal z . Ray w is perpendicular to line z . If the $m\angle 1 = 58^\circ$, find the remaining numbered angles. State the geometric reason for each step.

$90 + 58 + 42 = 180$
 $42 = 32^\circ$



Angle	Angle Measure	Reason
$\angle 2$	32°	consecutive adj. \angle 's on a line sum to 180°
$\angle 3$	58°	if $2 \parallel$ lines are cut by a transversal then corresponding \angle 's are equal in measure
$\angle 4$	148°	Linear pairs form suppl. \angle 's
$\angle 5$	32°	Linear pairs form suppl. \angle 's <u>or</u> vertical \angle 's are equal in measure

4) In the diagram below, line m is parallel to line n , and line r and line s are transversals. Determine the measure of the remaining angles and state the geometric reason for each step.



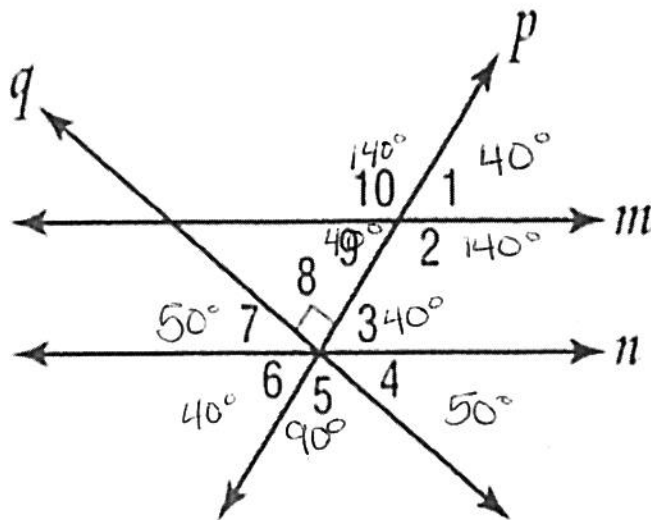
Angle	Angle Measure	Reason
$\angle 1$	132°	vertical \angle 's are equal in measure <u>or</u> The \angle 's of a Δ sum to 180
$\angle 2$	21°	if \parallel lines are cut by a transversal then alt. int. \angle 's are equal in measure
$\angle 3$	27°	if \parallel lines are cut by a transversal then alt. int. \angle 's are equal in measure
$\angle 4$	153°	Linear pairs form suppl. \angle 's
$\angle 5$	159°	Linear pairs form suppl. \angle 's

Name: _____

Date: _____

Exit Ticket:

In the diagram below, line m is parallel to line n , and line q is perpendicular to line p . If $m \angle 1 = 40^\circ$, determine the measure of the remaining angles and state the geometric reason for each step.



Angle	Angle Measure	Reason
$\angle 2$	140°	Linear pairs form supp. \angle 's
$\angle 3$	40°	if 2 \parallel lines are cut by a trans. then corresponding \angle 's are equal in measure
$\angle 4$	50°	consecutive adj \angle 's on a line sum to 180°
$\angle 5$	90°	Vertical \angle 's are equal in measure
$\angle 6$	40°	Vertical \angle 's are equal in measure
$\angle 7$	50°	consecutive adj \angle 's on a line sum to 180°
$\angle 8$	90°	\perp lines form rt \angle 's
$\angle 9$	40°	Vertical \angle 's are equal in measure
$\angle 10$	140°	linear pairs form supp. \angle 's or vertical \angle 's are equal in measure

