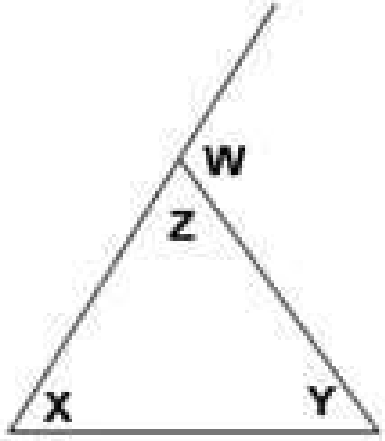
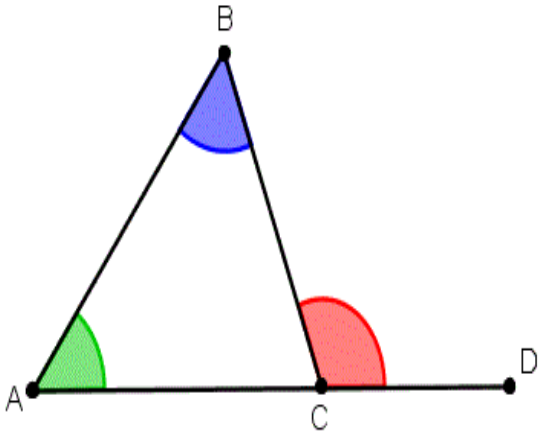
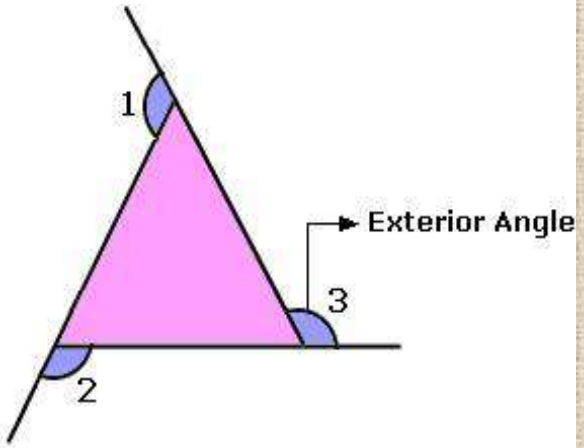




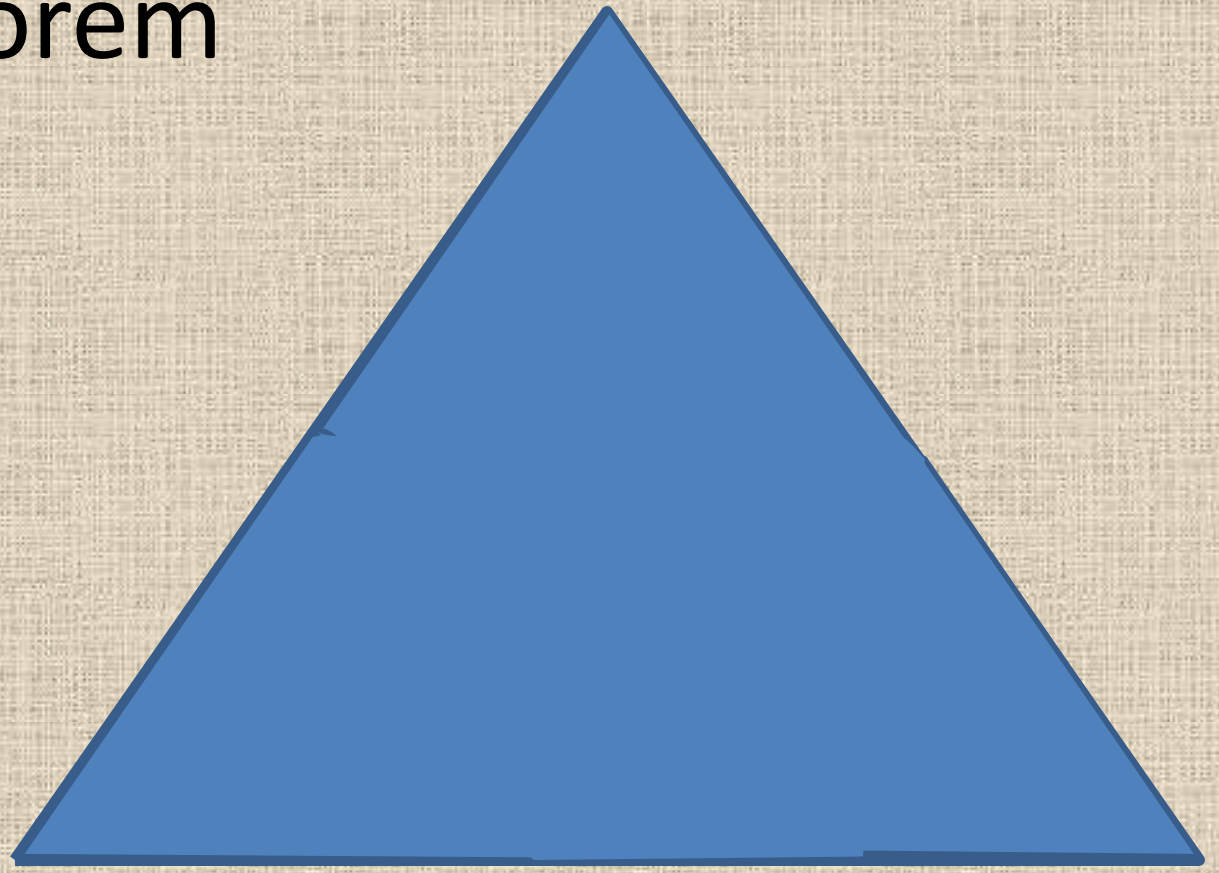


Interior Angles of Triangles

Learning Target

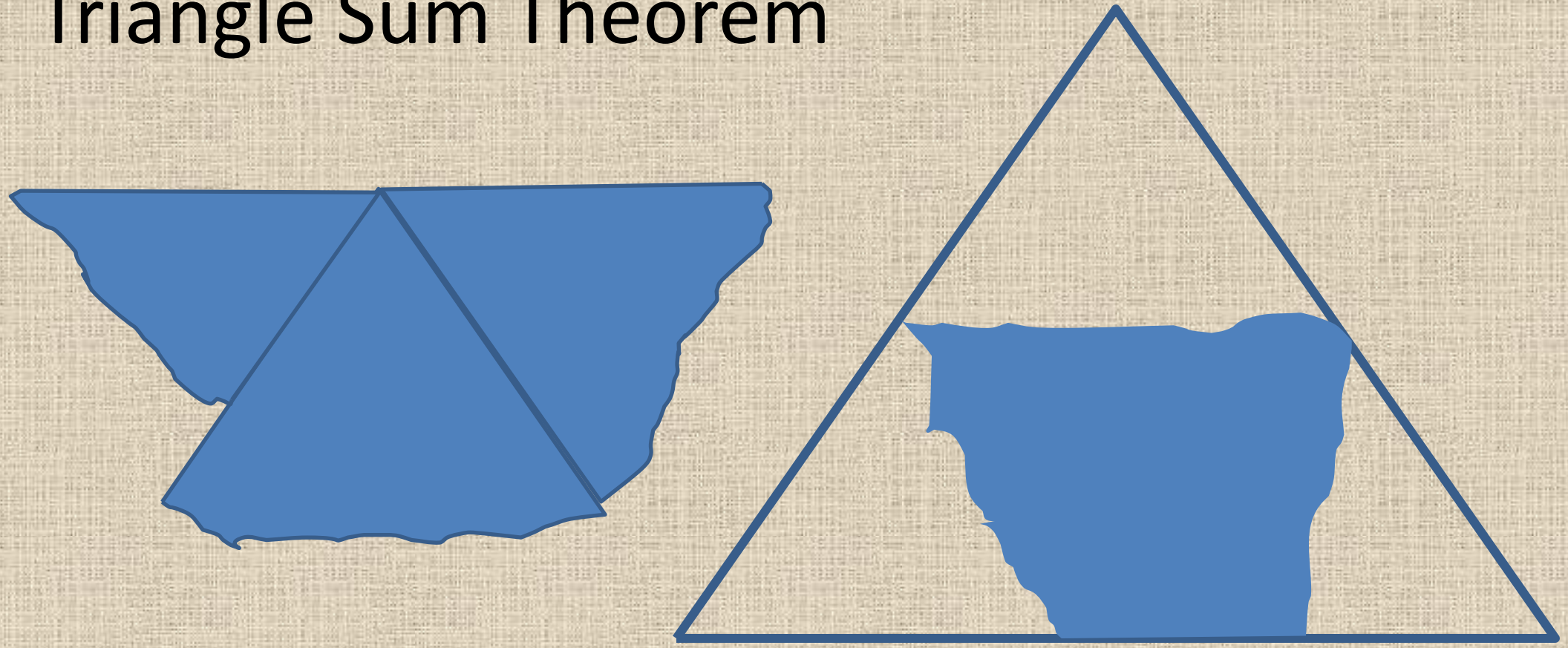
I CAN calculate the interior angles of a triangle.

Triangles Review
Triangle Sum Theorem



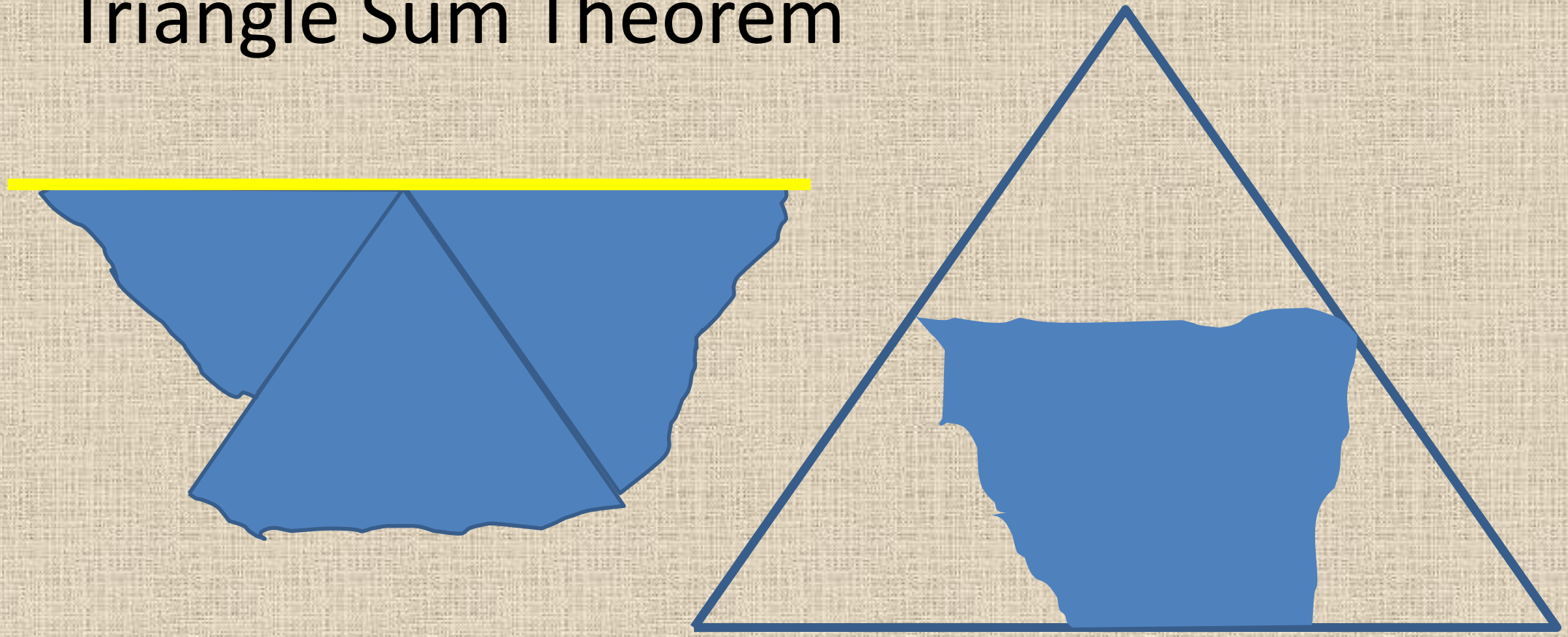
Tear off the corners of your triangle.
Glue the center piece in place in your book.

Triangles Review
Triangle Sum Theorem



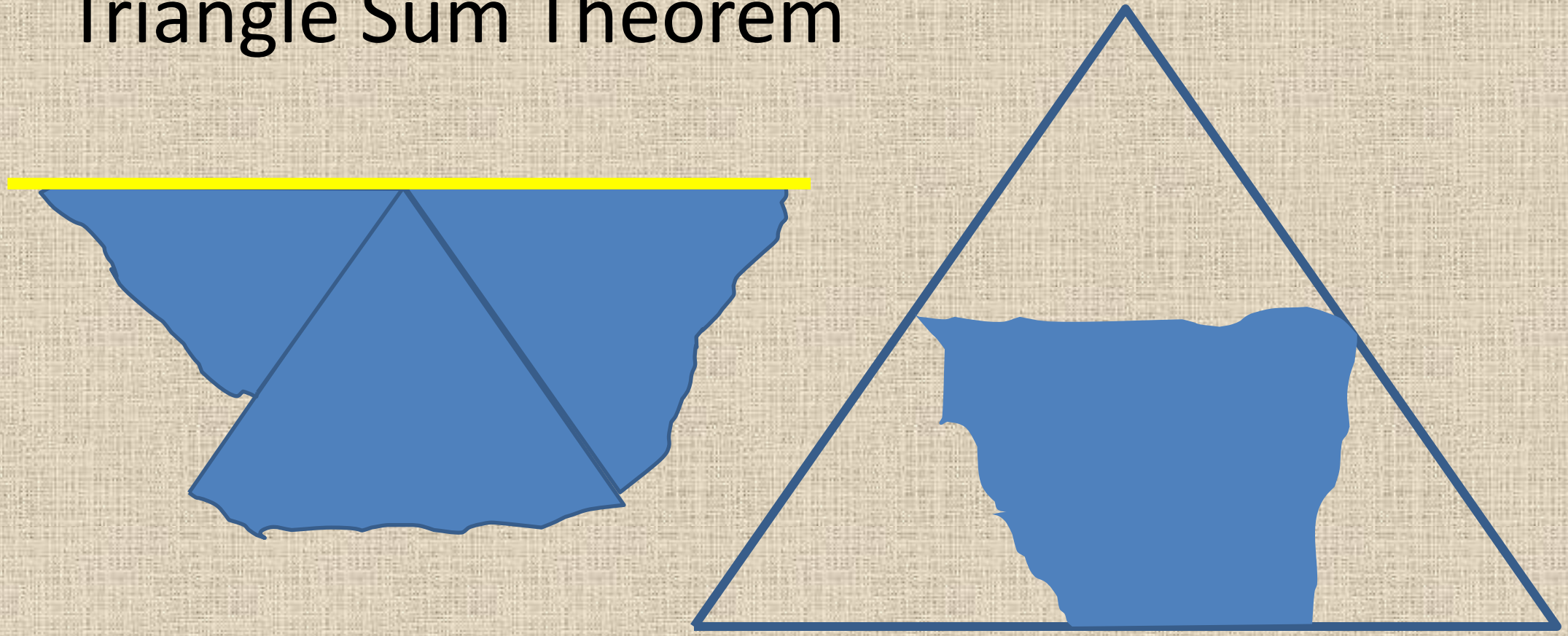
Line up the edges and glue them in.

Triangles Review
Triangle Sum Theorem



What have you created?

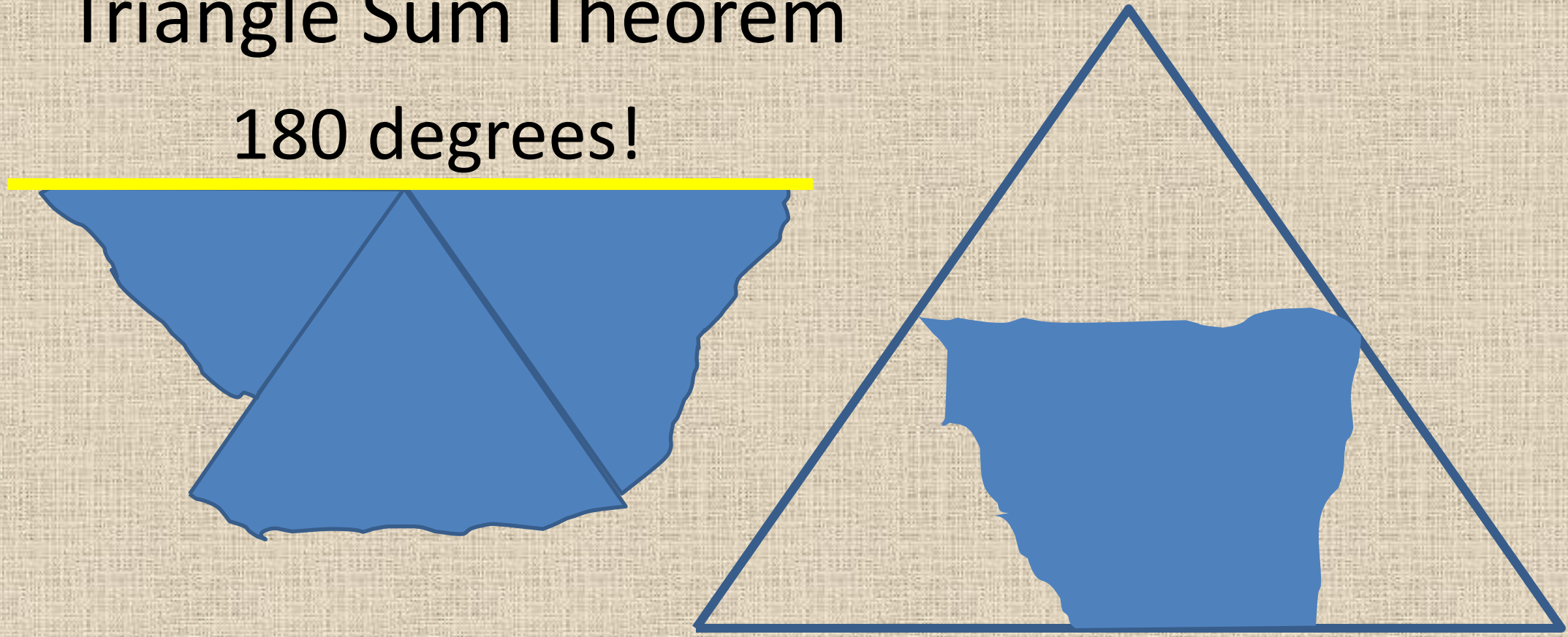
Triangles Review
Triangle Sum Theorem



A straight line!

Triangles Review
Triangle Sum Theorem

180 degrees!

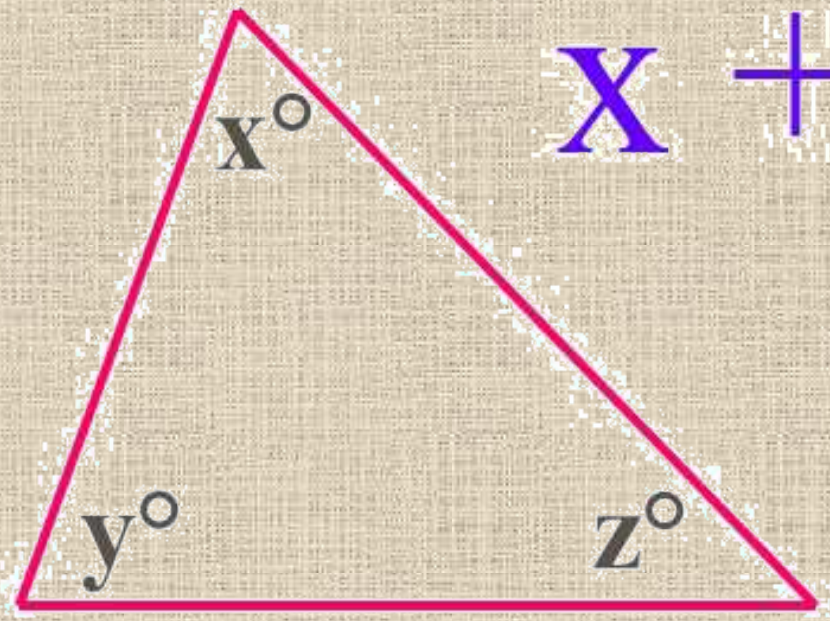


Measure the line to determine the degrees.

NOTE:

Triangle Sum Theorem

The measures of the three interior angles in a triangle add up to be 180°.



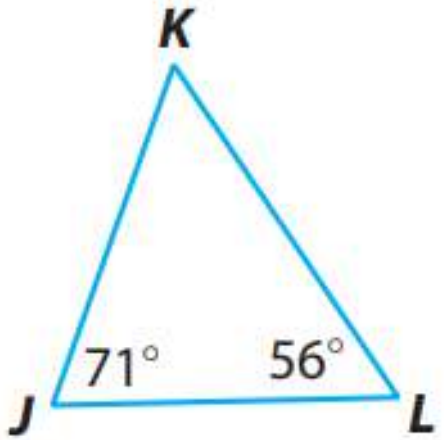
$$x + y + z = 180°$$

Practice: pg 355 Your Turn

YOUR TURN

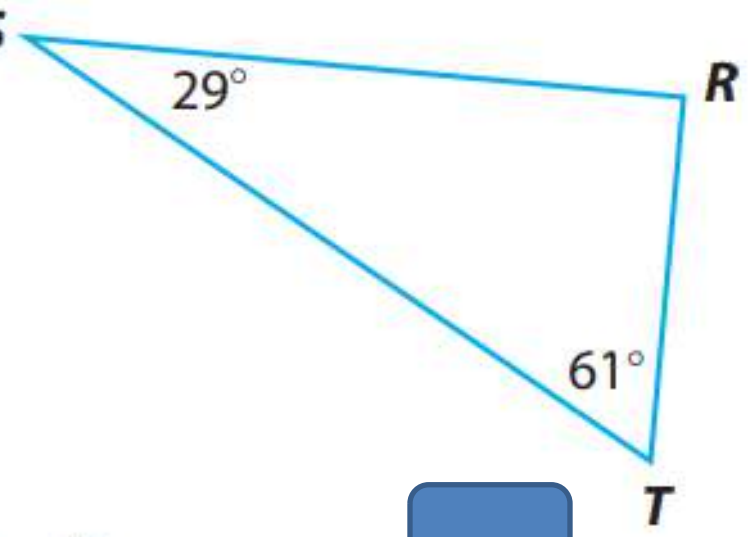
Find the missing angle measure.

4.

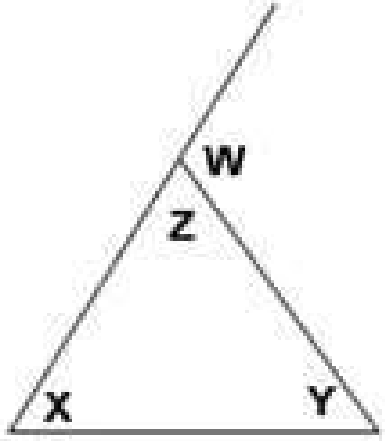


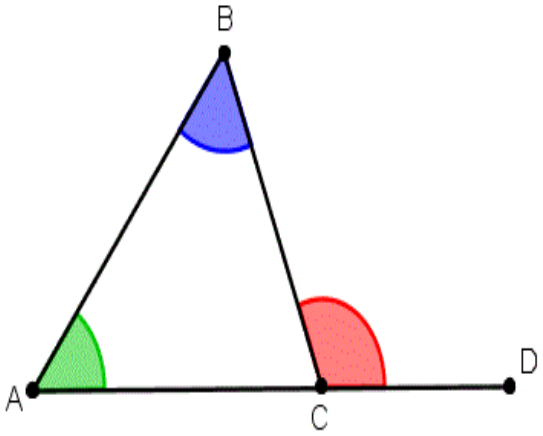
$m\angle K =$ _____

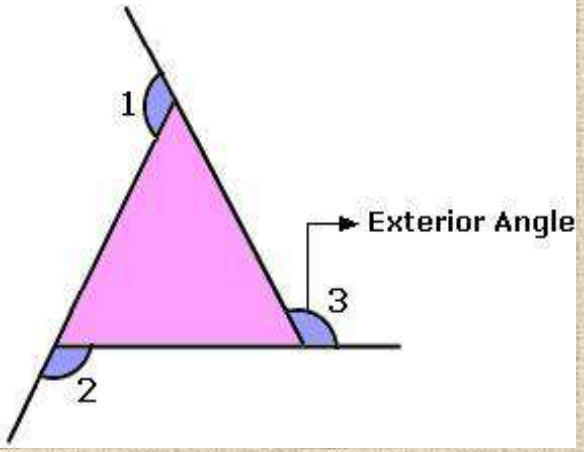
5.



$m\angle R =$ _____





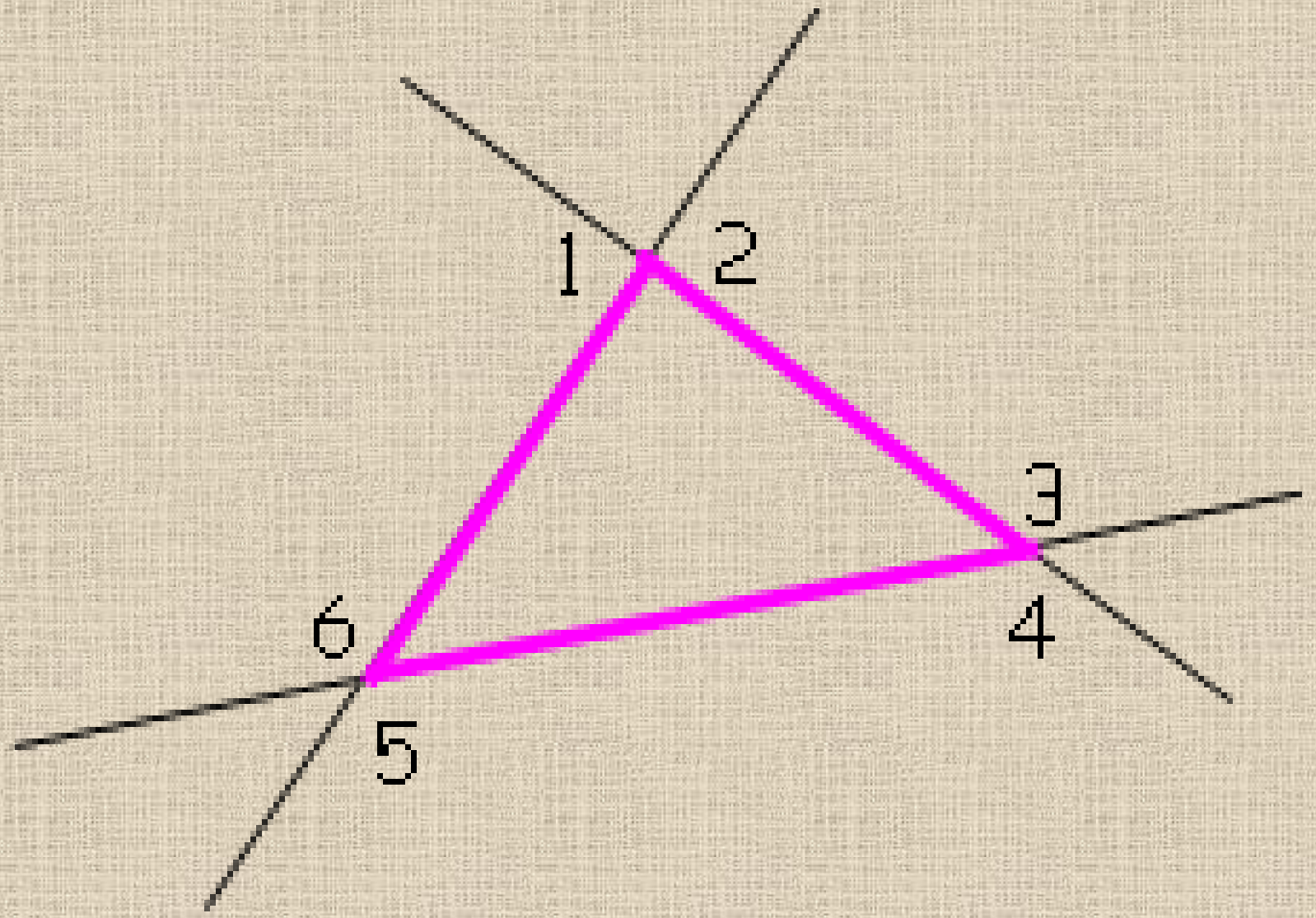


Exterior Angles of Triangles

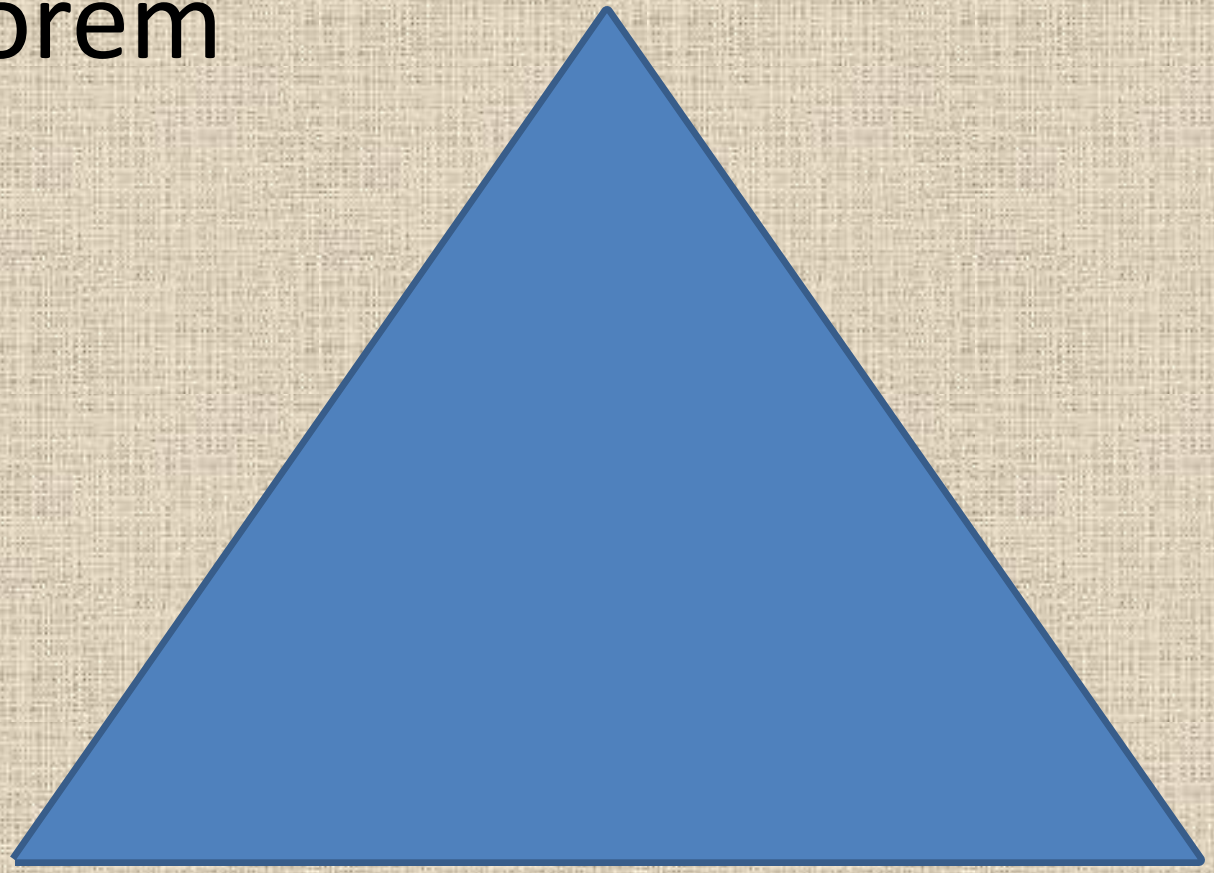
Learning Target

I CAN calculate the exterior angles of a triangle.

Discovery Activity – Remote Exterior Angles

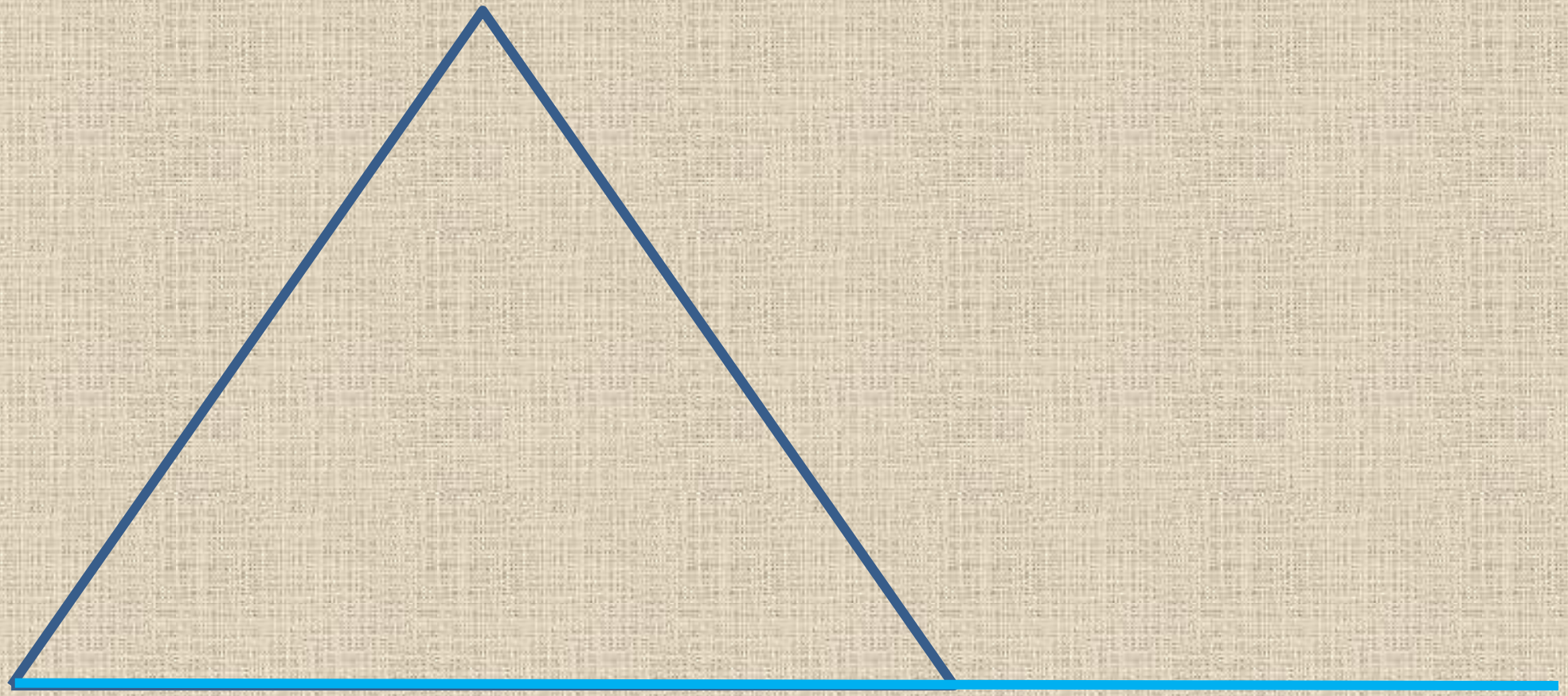


Triangles Review
Triangle Sum Theorem



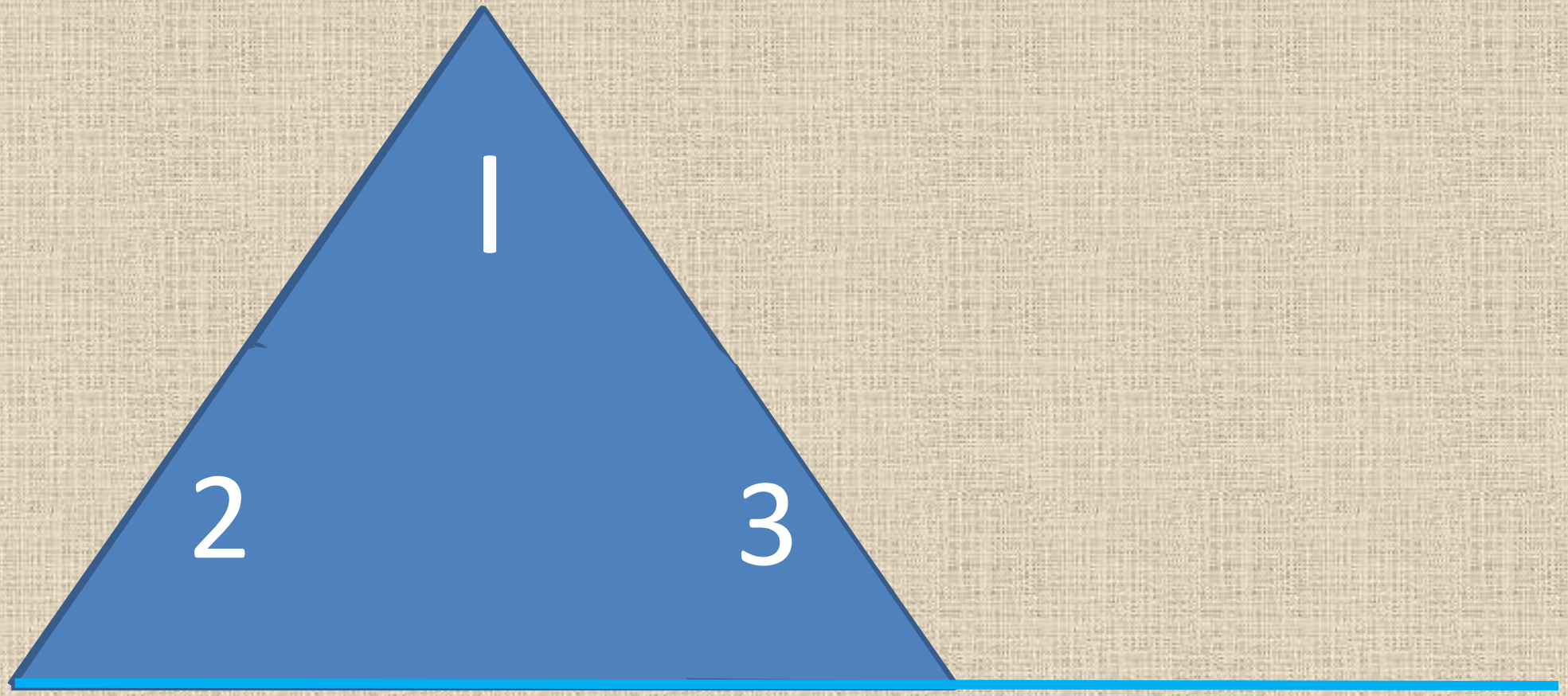
Trace your triangle into your notebook.

Remote Exterior Angles



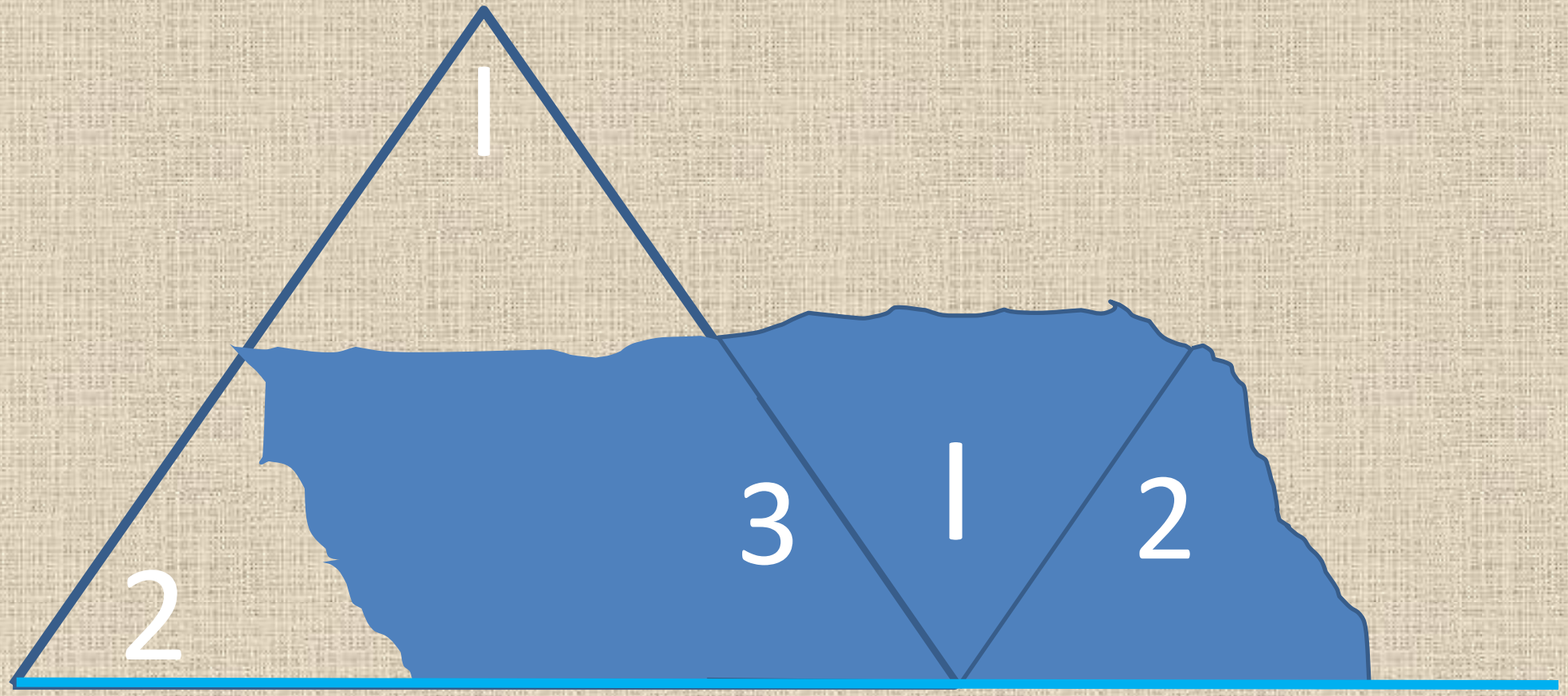
Extend a line from one edge.

Remote Exterior Angles



Tear off two corners of your triangle.
Glue the remaining piece in place in your book.

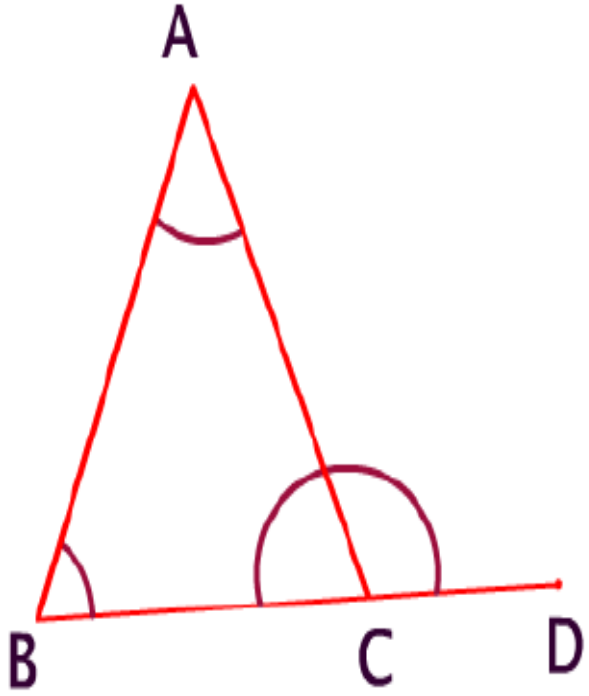
Remote Exterior Angles



Glue those two pieces in place in your book.

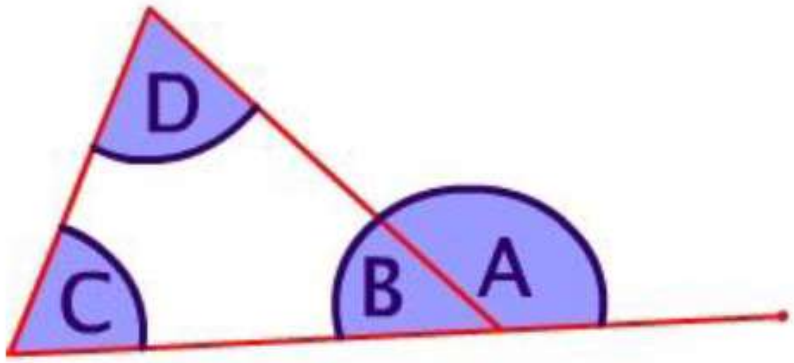
NOTE: Relationship Between Exterior and Remote Interior Angles in a Triangle

An exterior angle of a triangle is formed by extending any one side.



Relationship Between Exterior and Remote Interior Angles in a Triangle

The Formula



∠A= exterior angle

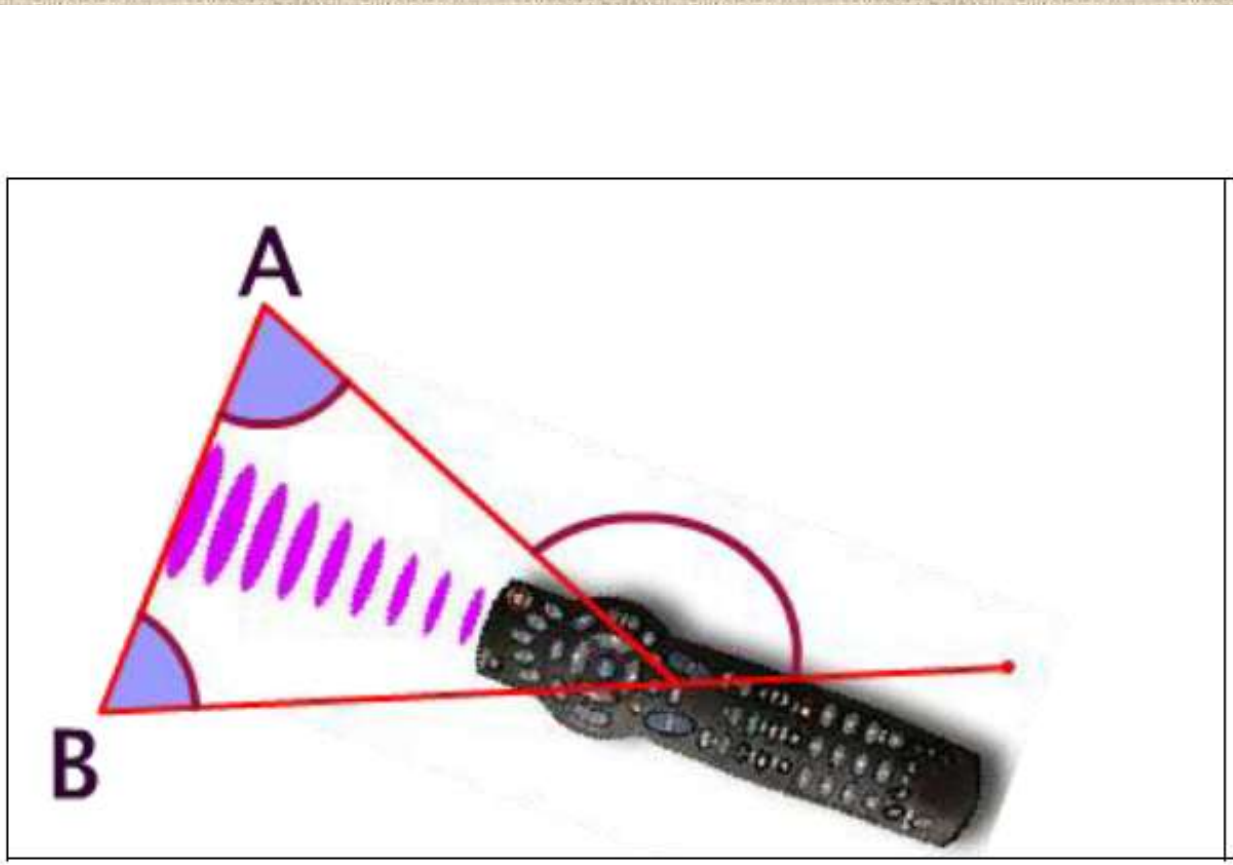
∠C=remote interior angle

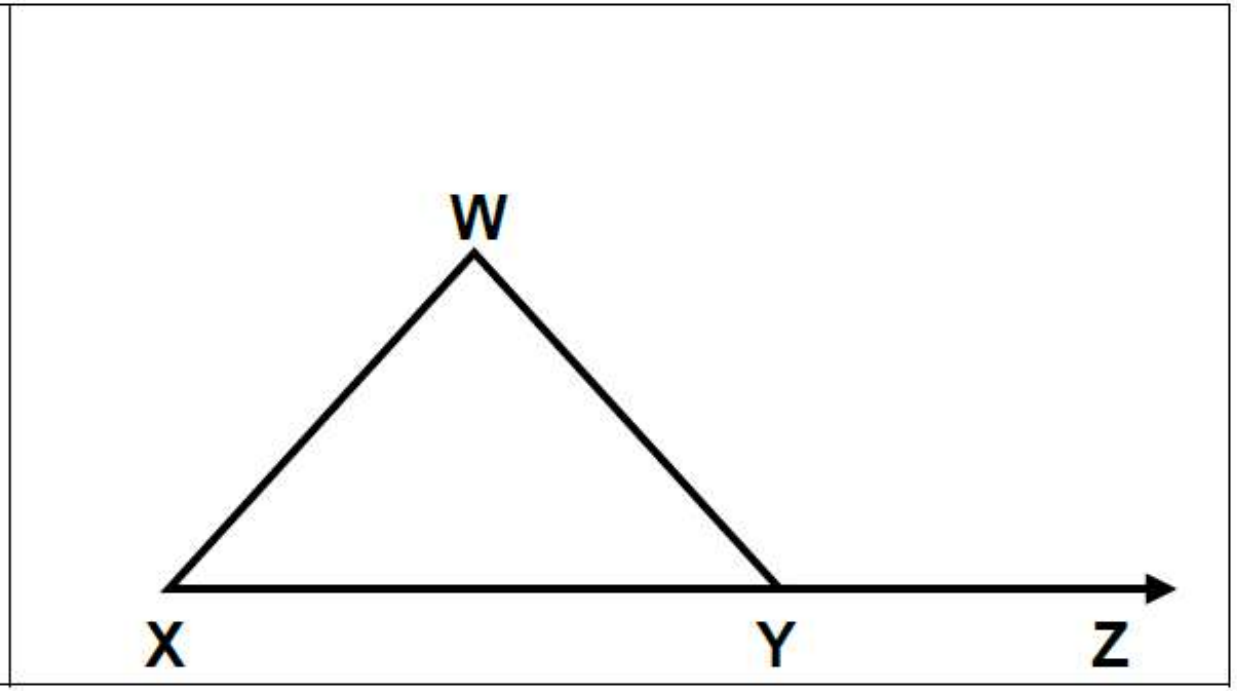
∠D=remote interior angle

exterior angle = sum of the remote interior angles

$$\angle A = \angle C + \angle D$$

Relationship Between Exterior and Remote Interior Angles in a Triangle





Summary

- The measure of an exterior angle of a triangle is equal to the sum of the measures of both remote interior angles.

- The sum of the exterior angles of a triangle is **360°**.

NOTE: Solve for x

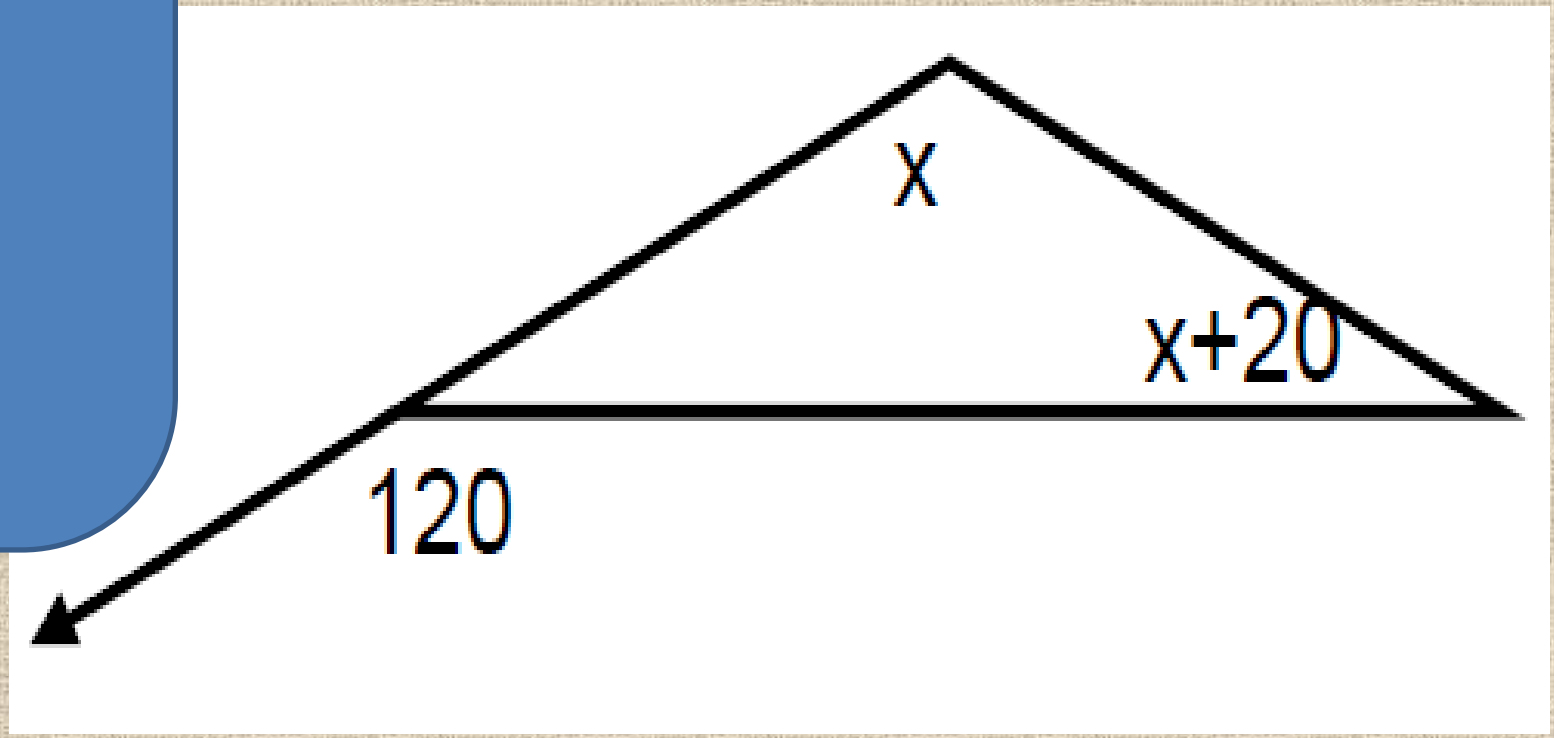
$120^\circ = x + (x+20^\circ)$

$120^\circ = 2x + 20^\circ$

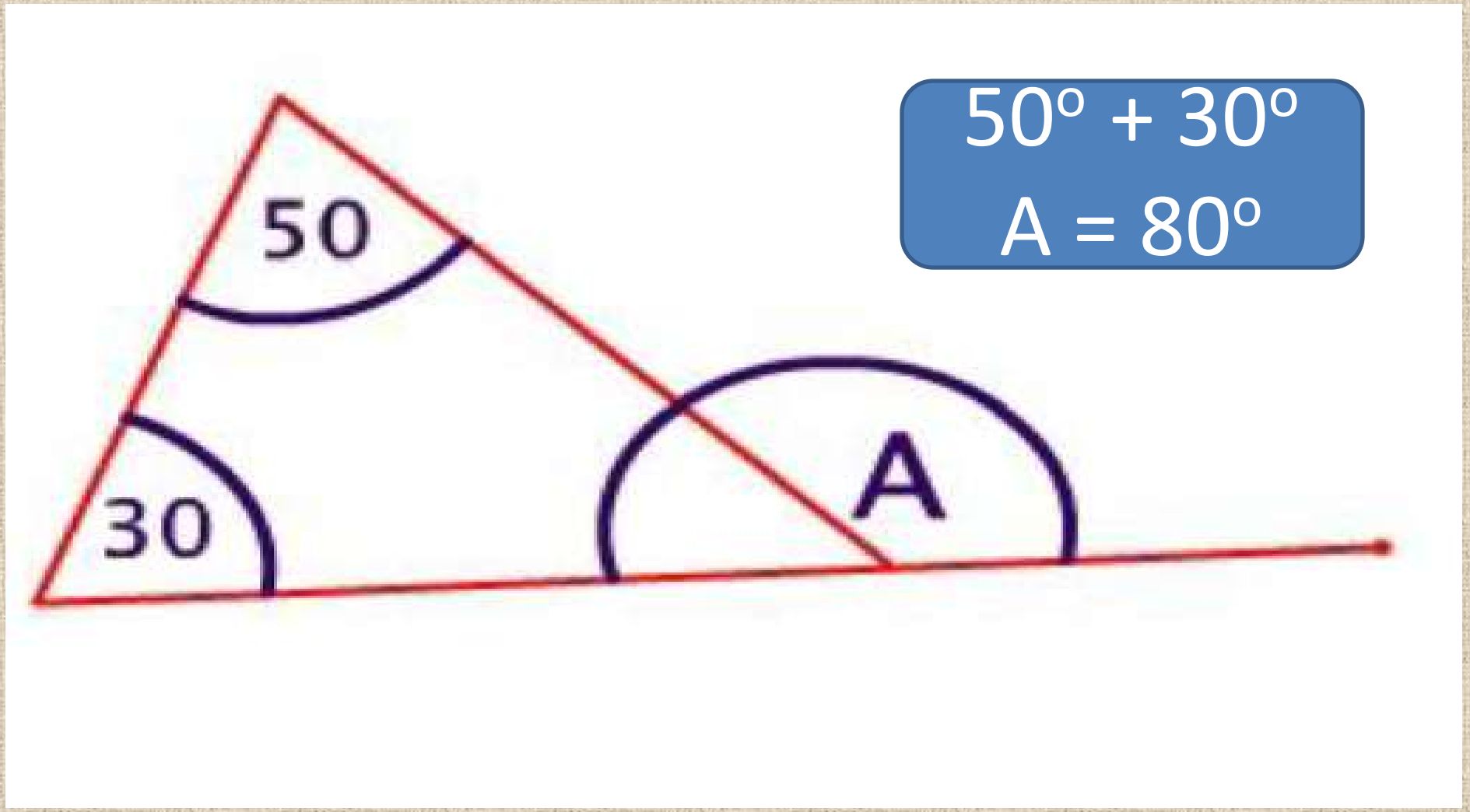
$-20 \qquad -20$

$\frac{100}{2} = \frac{2x}{2}$

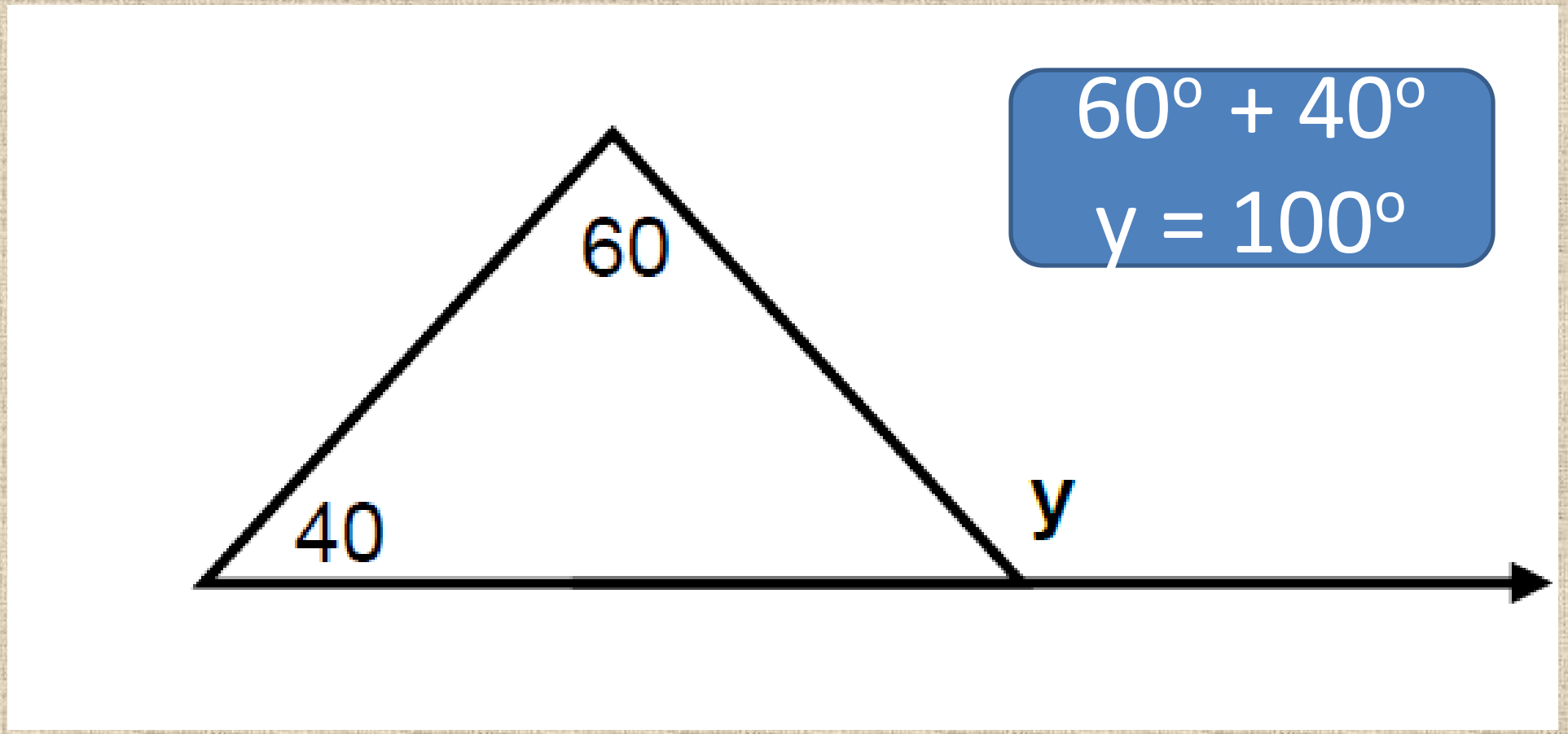
$50 = x$



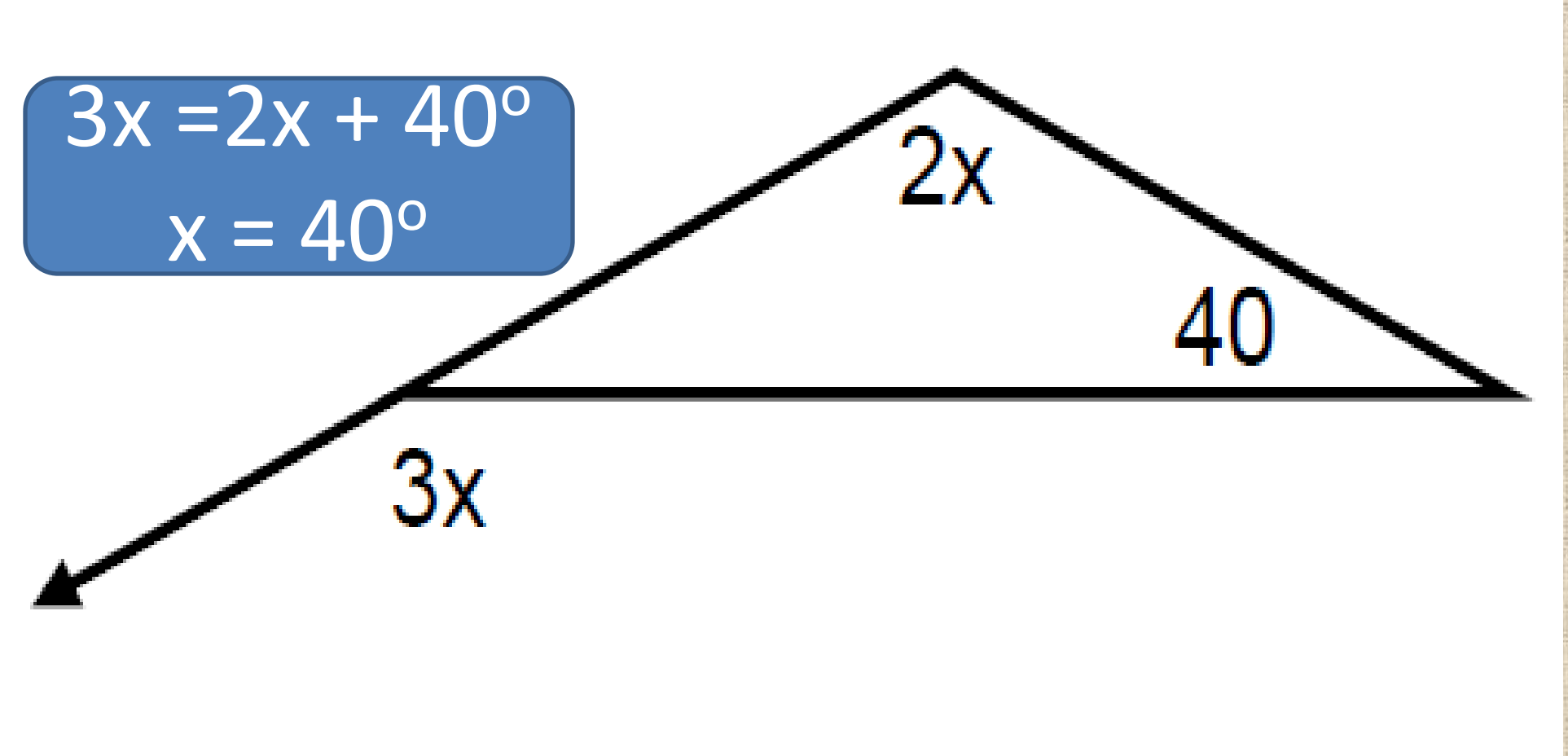
Boards: Solve for A



Boards: Solve for y

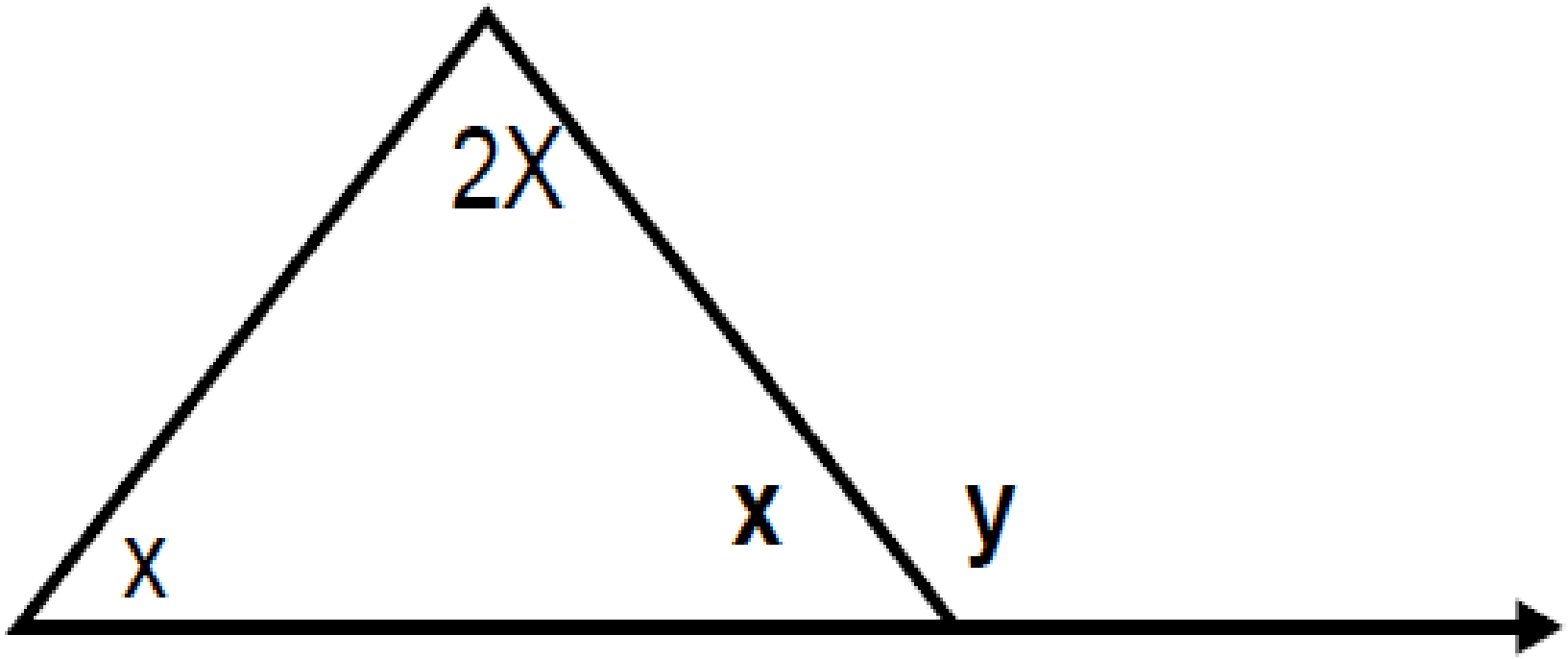


Boards: Solve for x



NOTE: What strategy would you begin with?

Challenge Problem (determine the value of x and of y)



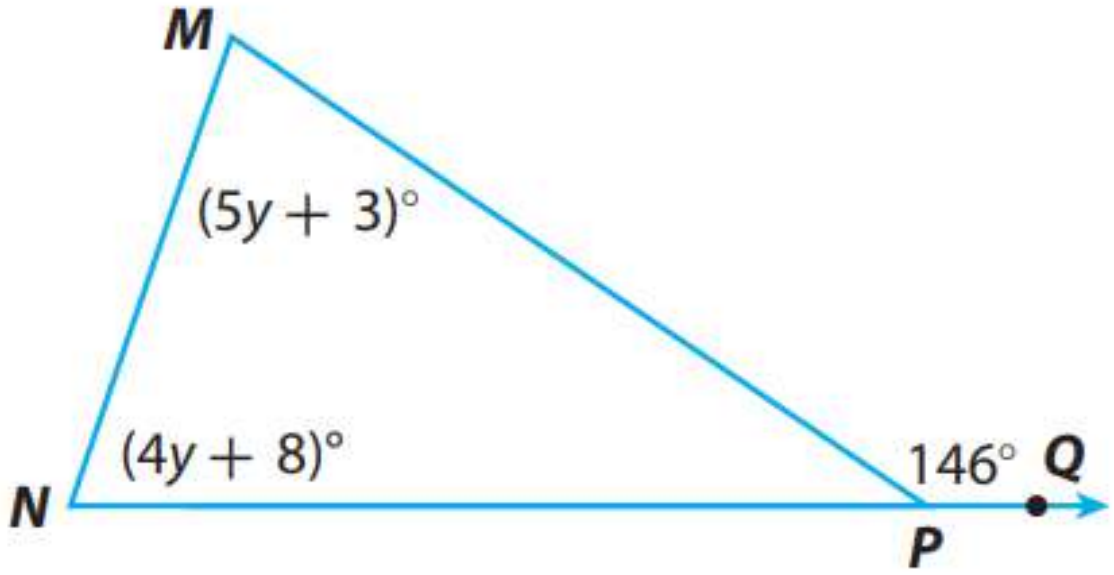
Practice: pg 357 Your Turn
What strategy will you start with?

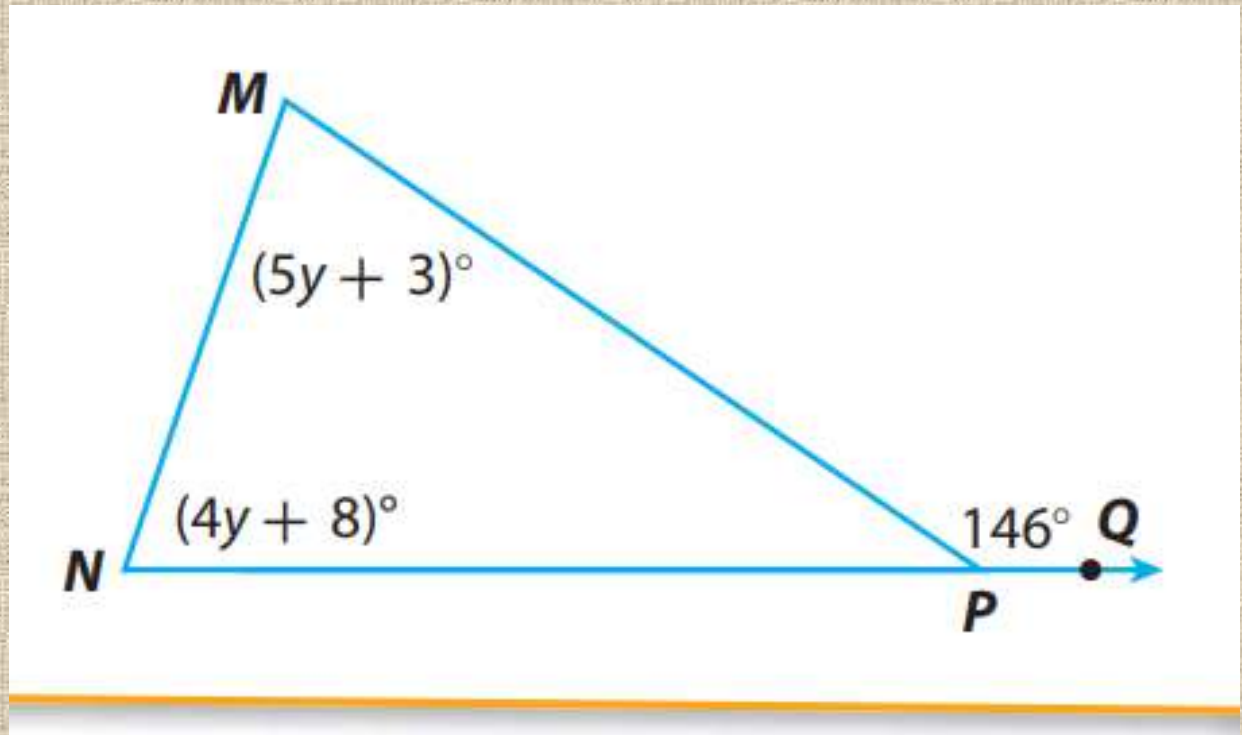
YOUR TURN

8. Find $m\angle M$ and $m\angle N$.

$m\angle M =$ _____

$m\angle N =$ _____




M
(5y + 3)°
(4y + 8)°
146°
Q
N
P

$$(5y+3)+(4y+8) = 146$$

$$9y+11 = 146$$

$$-11 \qquad -11$$

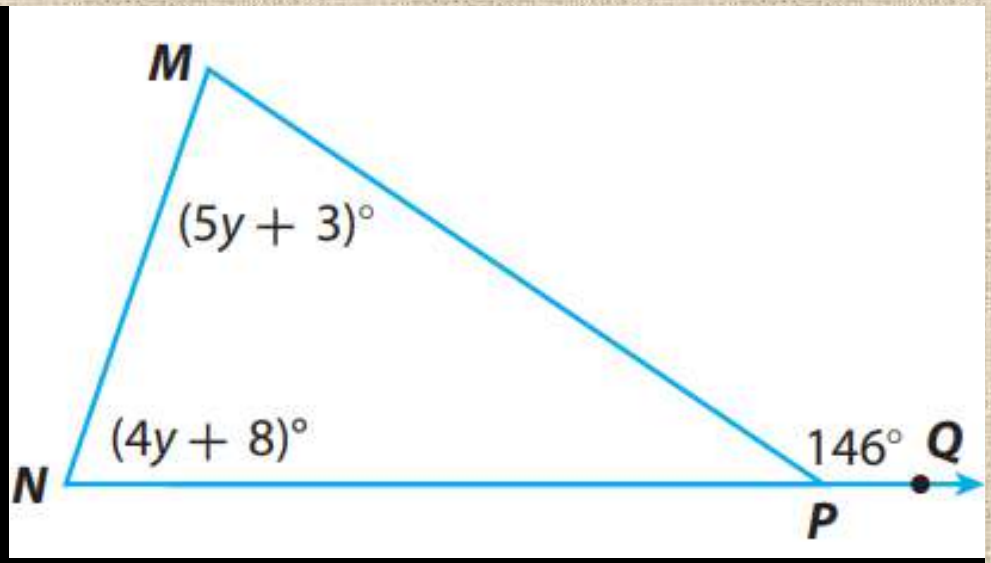
$$9y = 135$$

$$\frac{9y}{9} = \frac{135}{9}$$

$$y = 15$$

Solve $5(15)+3 = M$

$$78 = M$$



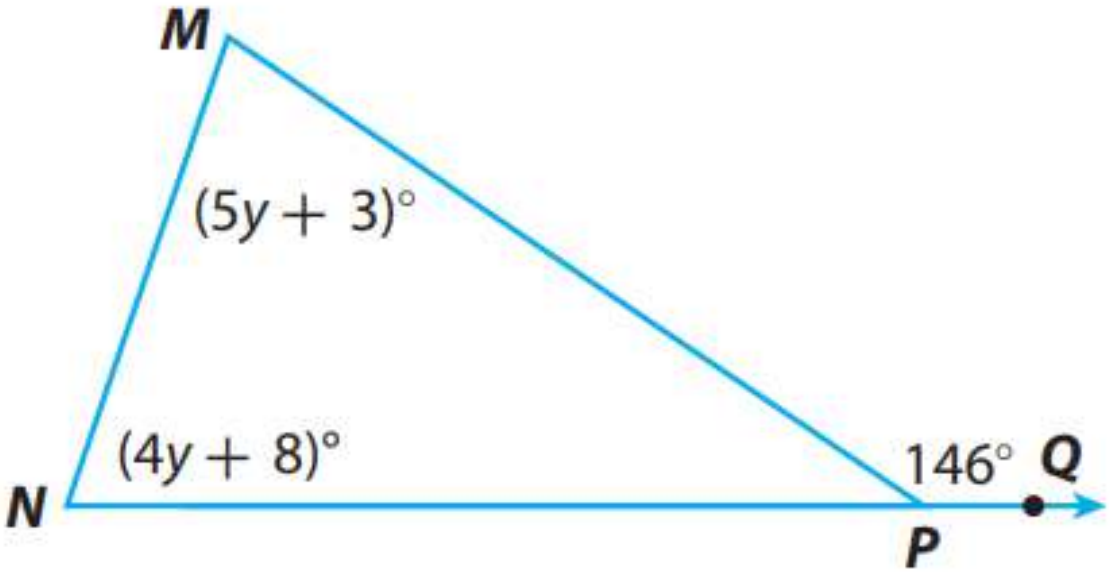
Practice: pg 357 Your Turn

YOUR TURN

8. Find $m\angle M$ and $m\angle N$.

$m\angle M =$ 78°

$m\angle N =$ [redacted]



Learning Target

I CAN calculate the exterior angles of a triangle.

- Complete pg 358 1-13
- Closing ticket