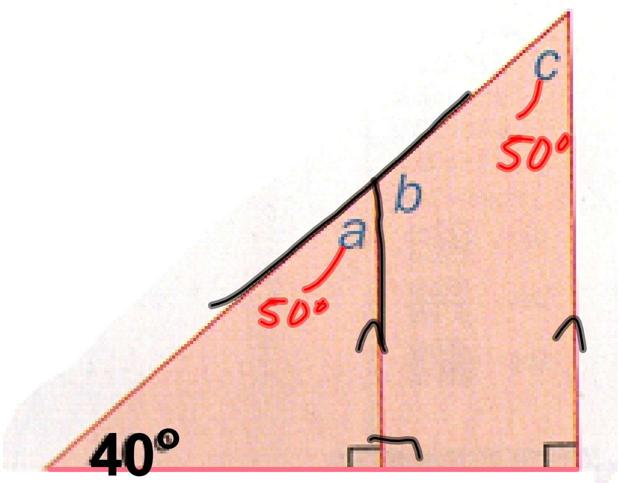
What's Going On?

Checking In	
Minds on	Group Aquayo
Action!	The Big Ideas
Consolidation	Jeopardy

Learning Goal - I will review my Geometric Relationships!

Determine the measure of angle b.



First, use SATT to find a or c.

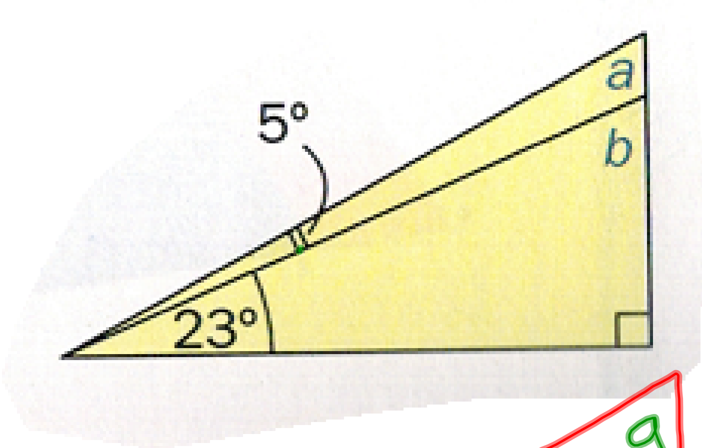
$180-90-40=\boxed{50^\circ}$

Then, use SAT to find b.

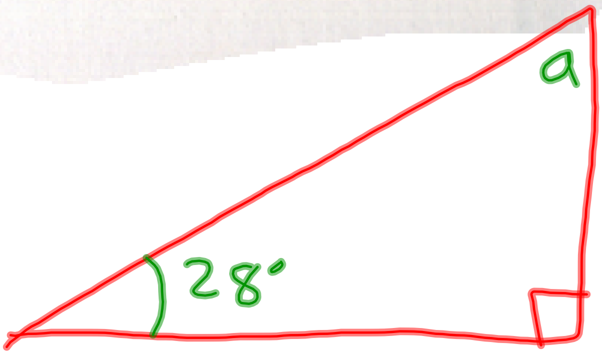
$180-50=130^\circ$

$\therefore\ b=130^\circ$

Determine the measure of angle a.



62°

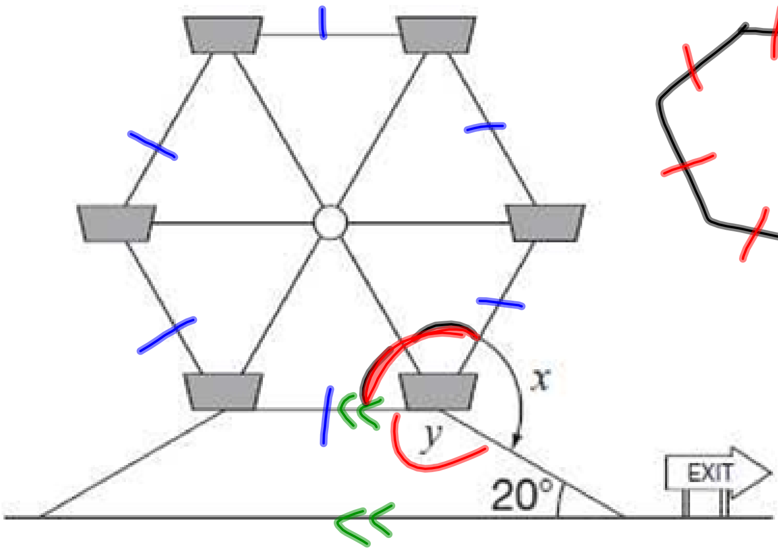


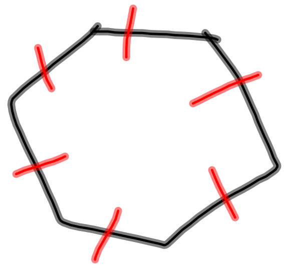
$a = 180 - 90 - 28$
$= 62°$
by SATT

Minds on

Group Aquayo!

A Ferris wheel has six sides of equal length. The exit ramp of the Ferris wheel is in the shape of a trapezoid and has an angle of incline of 20^o.





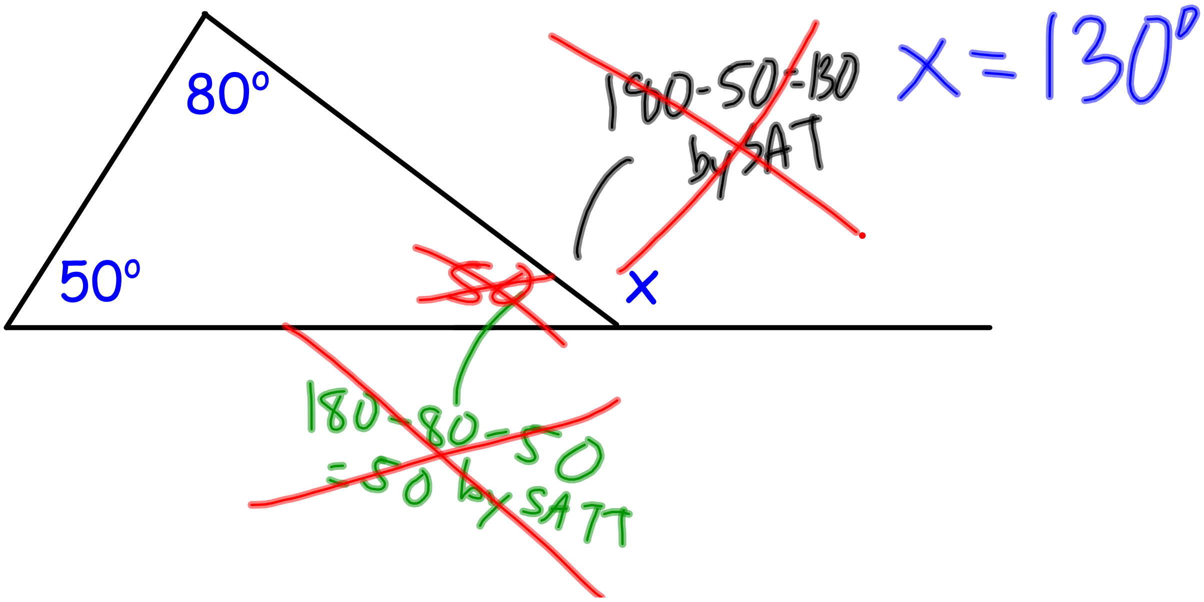
What are the values of *x* and *y*?

Use geometric properties to justify your answer.

Action!

One Last Little Thing

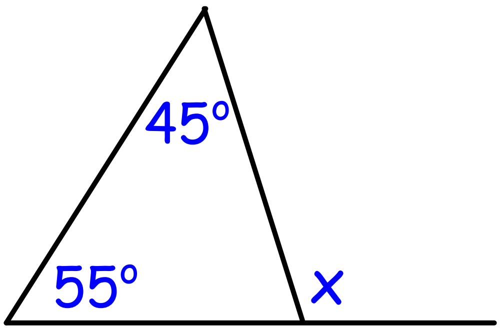
Find the measure of angle x



Action!

One Last Little Thing

Find the measure of angle x

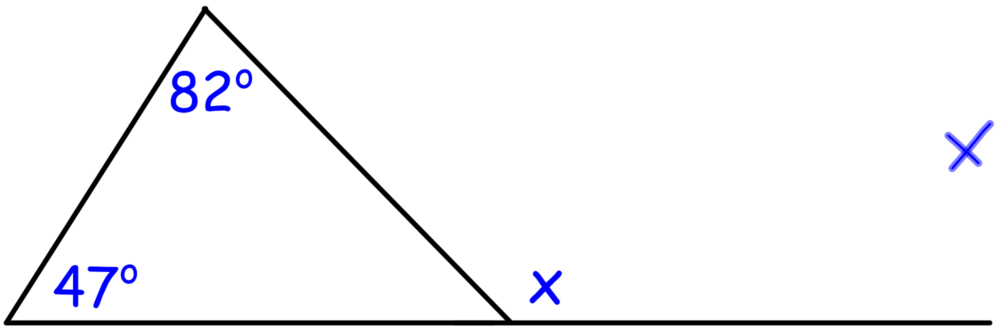


$x = 100°$

Action!

One Last Little Thing

Find the measure of angle x



$x = 129°$

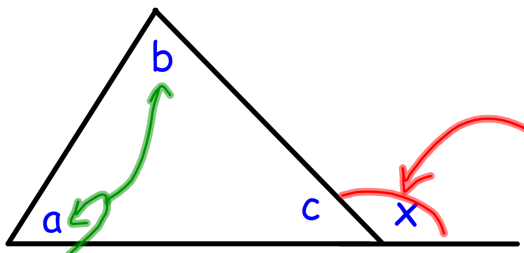
Action!

One Last Little Thing

Find the measure of angle x

We know that $\boxed{a + b + c}$ = 180 (SATT)

We know that $\boxed{c + x}$ = 180 (SAT)



$a + b + \cancel{c} = \cancel{c} + x$

$-\cancel{c} \quad -\cancel{c}$

$\boxed{a + b = x}$

$x = a + b$

Action!

The Big Ideas

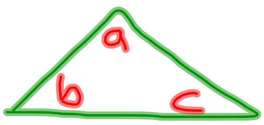
SAT Supplementary Angle Theorem

Two angles that exist along a straight line have a sum of 180°.

$a+b=180°$

SATT Sum of the Interior Angles in a Triangle Theorem

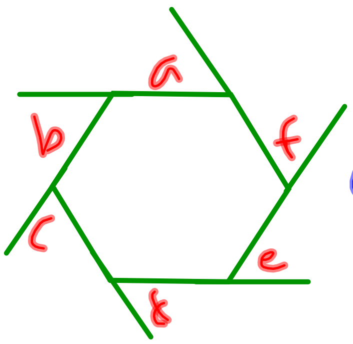
The sum of the **interior** angles of any triangle is 180°.



$a+b+c=180°$

EAT Exterior Angle Theorem

The sum of the exterior angles of **any polygon** is 360°.



$a+b+c+d+e+f+\ldots=360°$

Action!

The Big Ideas

$S = 180(n - 2)$

S is the sum of the interior angles of a polygon with n sides.

We can use this **formula** to find ***S*** given ***n***.

OR

We can use this **formula** to find ***n*** given ***S***.

more difficult!

Action!

The Big Ideas

$S = 180(n - 2)$

We can use this **formula** to find ***S*** given ***n***.

Find the sum of the interior angles of a polygon with 15 sides.

$S = 180(n-2)$ $n = 15$

$S = 180(15-2)$

$S = 180(13)$

$S = 2340$

$\therefore$ the sum of the interior angles is 2,340°.

Action!

The Big Ideas

$S = 180(n - 2)$

$\rightarrow$ or $\frac{S}{n}$

We can use this **formula** to find ~~***S***~~ given ***n***.

Find the measure of each angle in a regular polygon with 36 sides.

$n = \underline{36}$

$S = 180(n-2)$
$S = 180(36-2)$
$S = 180(34)$
$S = 6120$

...now what?

Now divide the sum of the angles (S) by the number of sides (n).

$\frac{S}{n} \Rightarrow \frac{6120}{36}$

$= 170°$

$\therefore$ each angle is 170° !!

Action!

The Big Ideas

$S = 180(n - 2)$

We can use this **formula** to find ***n*** given ***S***.

The sum of the interior angles of a polygon is 4,860°. How many sides?

$S = \underline{4{,}860}$

$S = 180(n-2)$

$\frac{4860}{180} = \frac{\cancel{180}(n-2)}{\cancel{180}}$

$27 = n - \cancel{2}$
$+2 \qquad \cancel{+2}$

$\underline{n = 29}$

∴ there are 29 sides

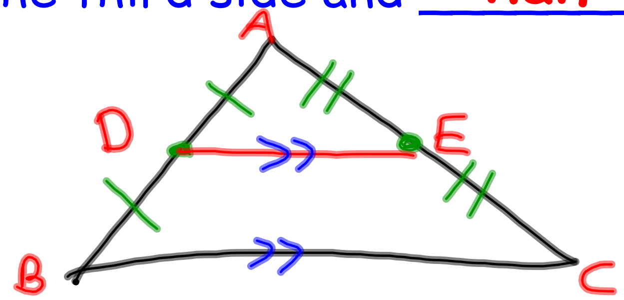
Shortcut
- divide S by 180
- then add 2

Action!

The Big Ideas

Midpoints and Medians in Triangles

A line segment joining the __midpoints__ of two sides of a triangle is __parallel__ to the third side and __half the length__.



$DE = \frac{1}{2} BC$

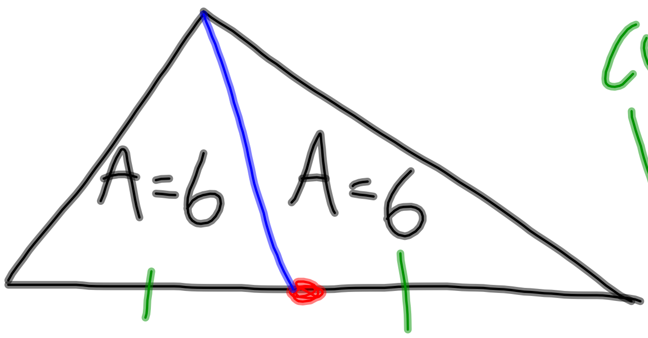
Action!

The Big Ideas

Midpoints and Medians in Triangles

The ____median____ of a triangle ____bisects____ its area.

cuts in half

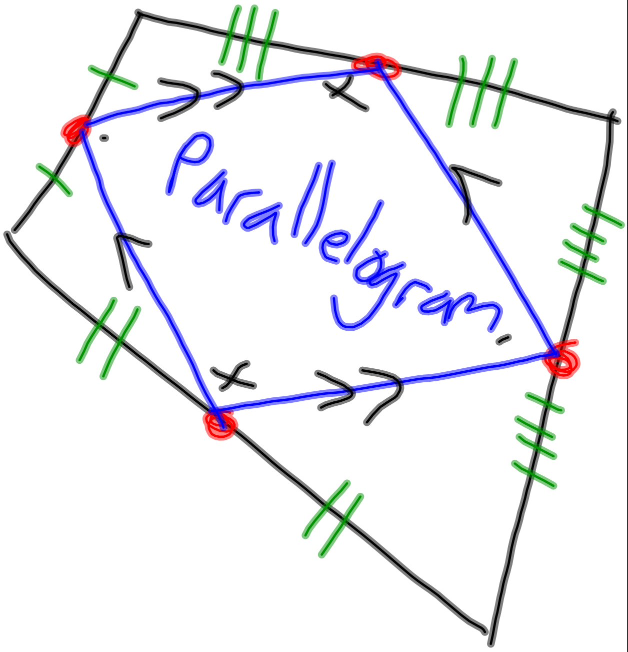


Action!

The Big Ideas

Midpoints and Diagonals in Quadrilaterals

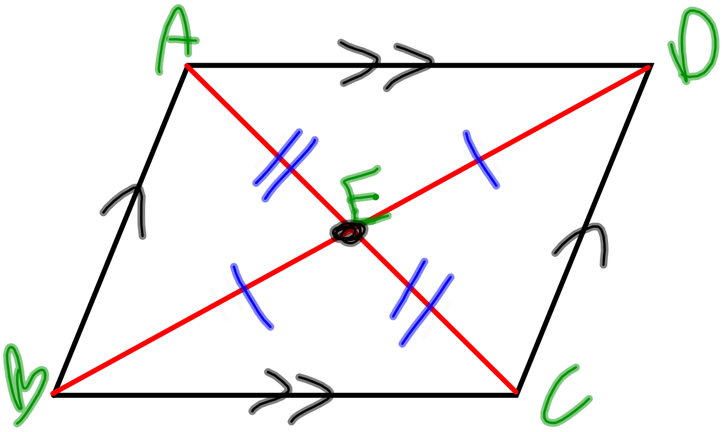
Joining the midpoints of the sides of any quadrilateral produces a parallelogram with half the area of the original quadrilateral.



The diagonals of a parallelogram

bisect each other.

cut in half!!



Consolidation

Jeopardy