

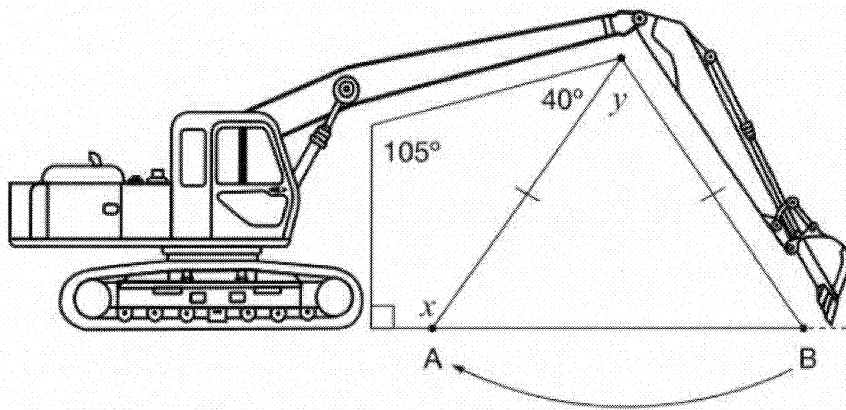
Name: \_\_\_\_\_

## Geometric Relationships

Answer each open response question as the instructions specify. Be sure to “justify”, “show your work”, etc... Please use a ruler for questions requiring graphs. When your work is complete, please hand it in.

### Digging Around

A hydraulic arm swings from Point B to Point A, as shown in the diagram below.



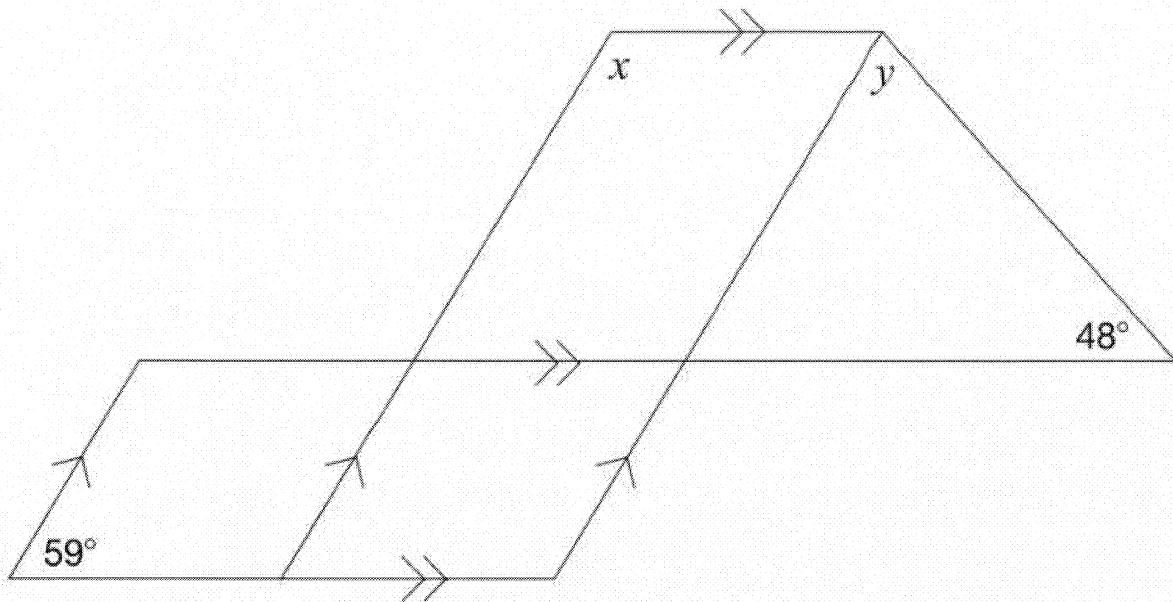
Determine the values of  $x$  and  $y$ .

Justify your answers using geometric properties.

Value	Justification
$x =$ _____	
$y =$ _____	

## Designing

Consider the design below.



Complete the table below with the values of  $x$  and  $y$ .

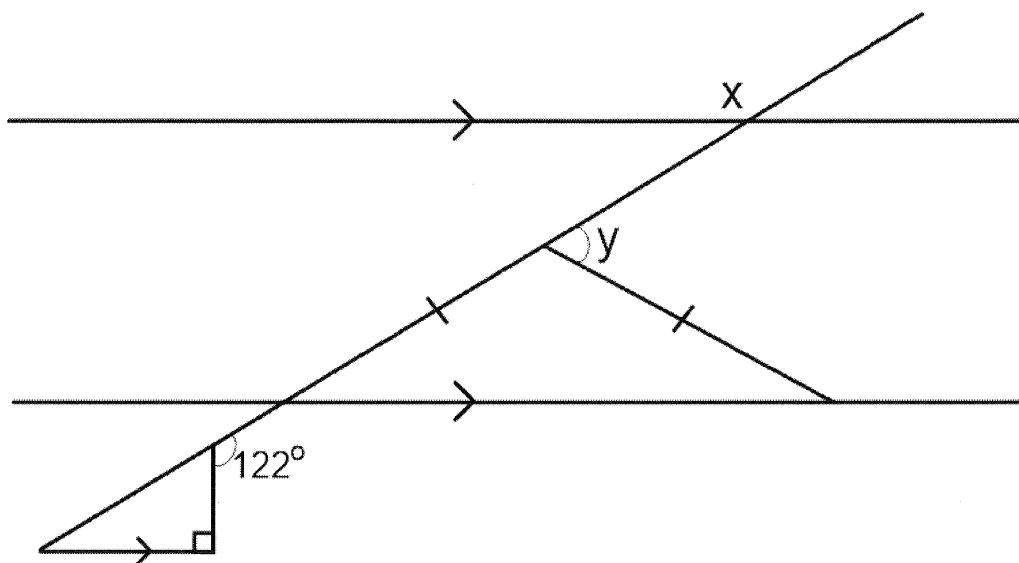
Justify your answers using geometric properties.

Value	Justification using geometric properties
$x =$ _____	
$y =$ _____	

## Jumpin' Geometry!

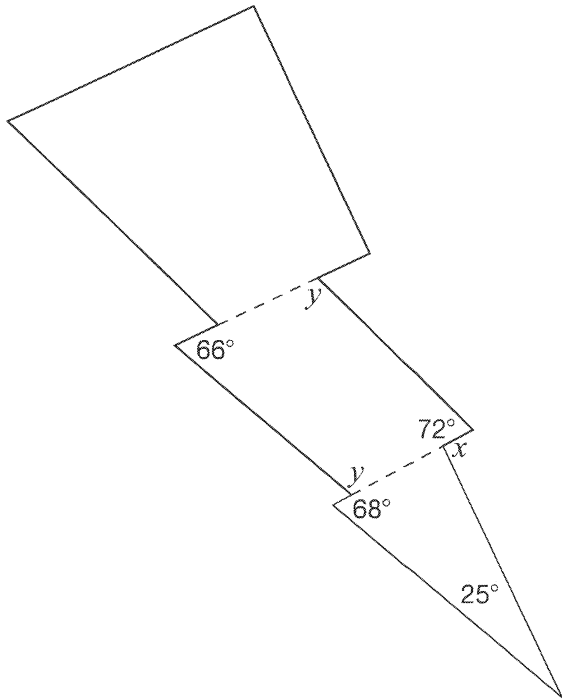
Determine the measures of angles  $x$  and  $y$ .

Show your work and justify your answers.



**31 Shazam**

Pravin designs a lightning bolt using two quadrilaterals and one triangle as shown below.



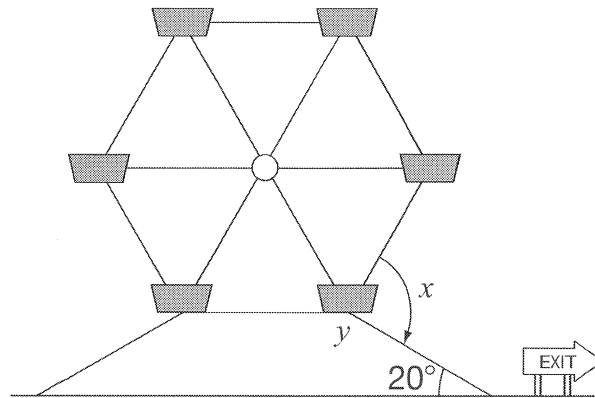
Complete the table below.

Justify your answers using geometric properties.

Angle measure	Justification
$x = \underline{\hspace{2cm}}$	
$y = \underline{\hspace{2cm}}$	

**21** **Wheels of Fun**

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  $20^\circ$ .

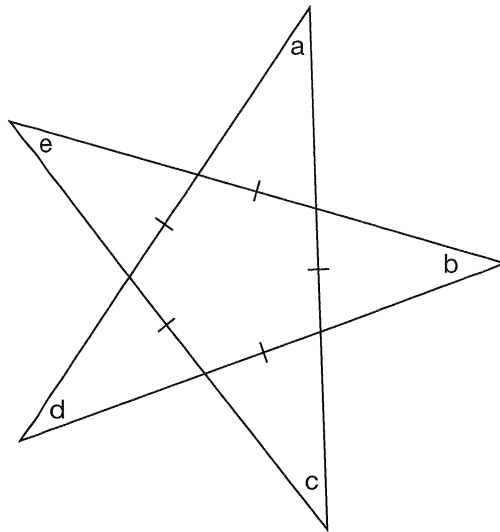


What are the values of  $x$  and  $y$ ?

Use geometric properties to justify your answer.

**21 Twinkle Twinkle**

Nicole notices the star design shown below on the pavement outside a movie theatre.

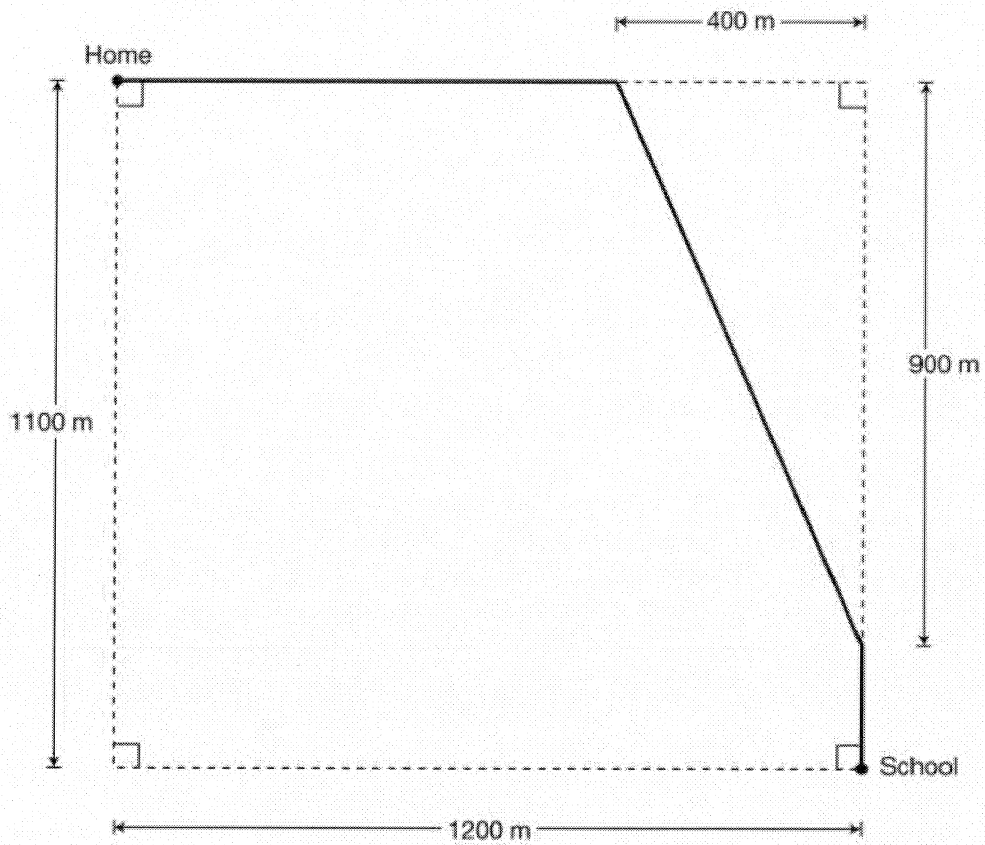


Determine the sum of the angle measures in the corners of this star:  $a + b + c + d + e$ .

Justify your answer using geometric properties.

## School's In

Chandra uses the map below to determine the distance from home to school.

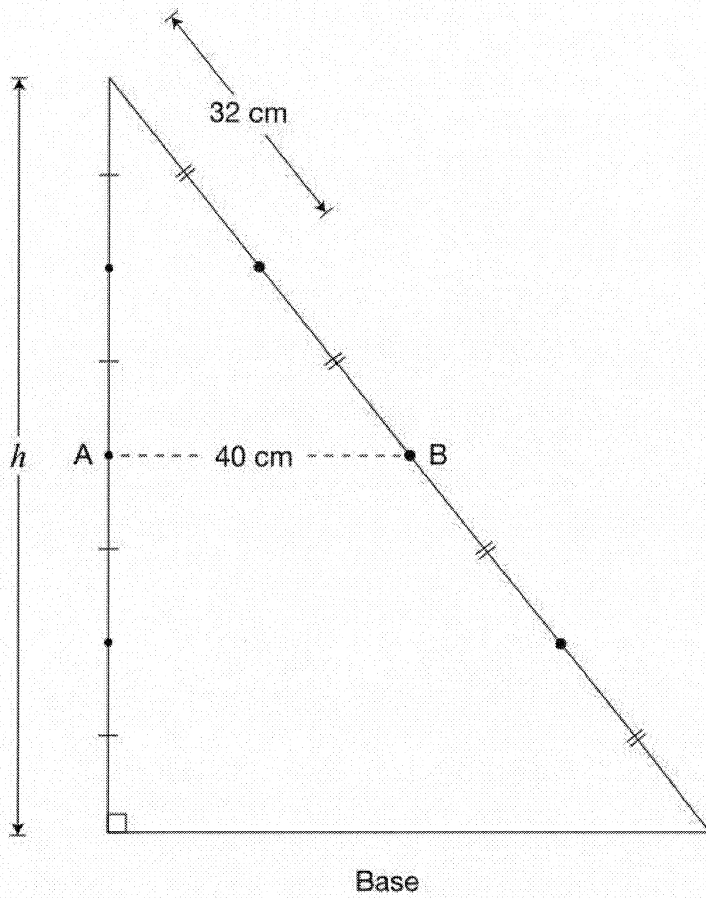


Determine the total distance she will travel from home to school if she walks along the dark, solid lines shown on the map.

Show your work.

## Tricky Triangle

Line segment AB joins the midpoints of two sides of the triangle below. The length of AB is half the length of the base of the triangle.



Determine the value of  $h$  in the diagram.

Show your work.