

Geometry & Measurement

4th
Grade

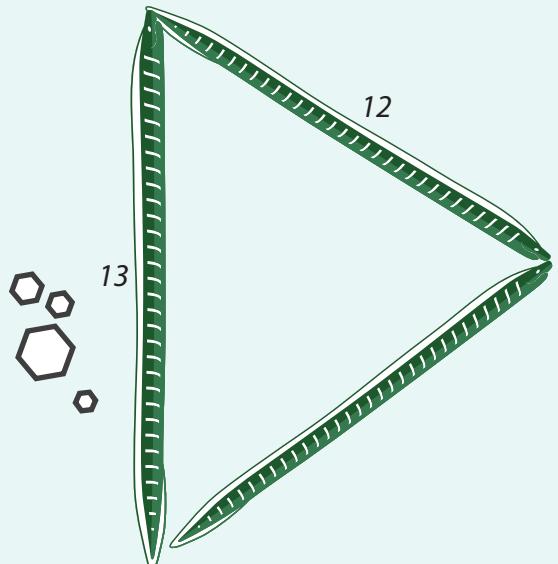
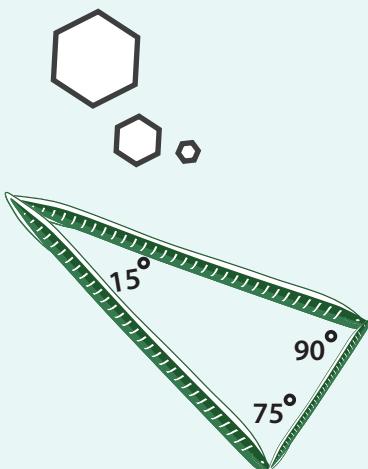
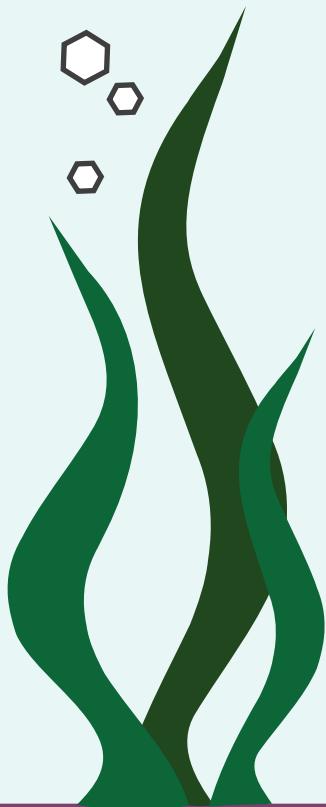
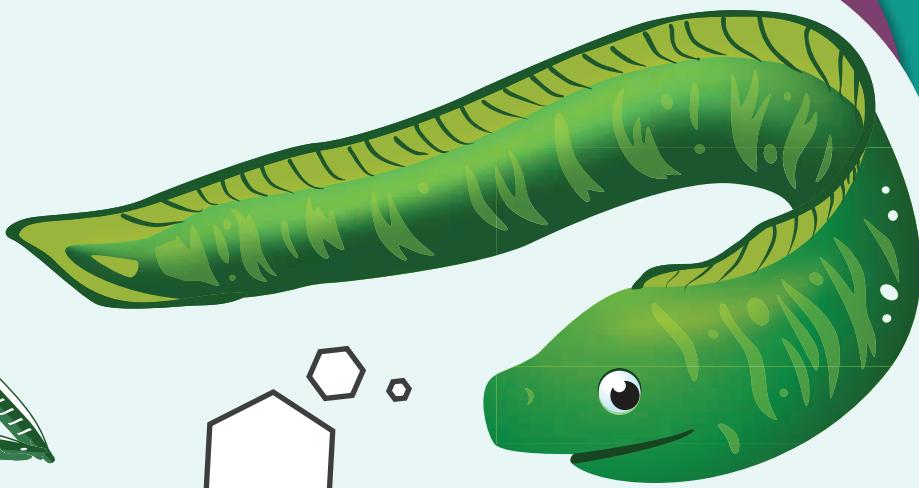
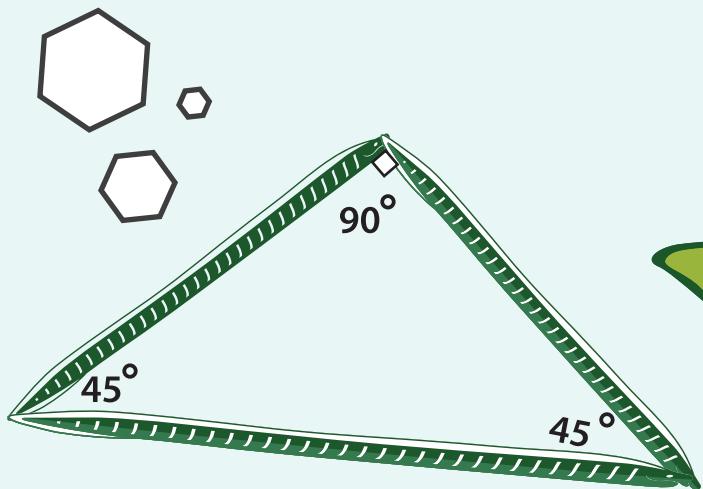


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Certificate of Completion

Answer Sheets

** Has an Answer Sheet*

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Acute Triangle: Practice Finding Area

Use the clues provided to find the area of each triangle. Show your work.

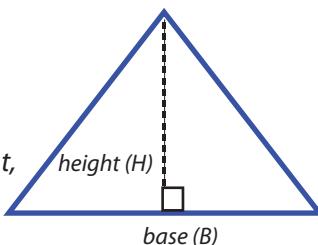
Review:

$$\text{Triangle Area} = \frac{1}{2} \times \text{base} \times \text{height}$$

The base of a triangle can be any one of its sides.

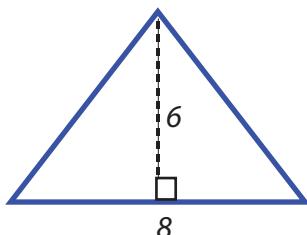
The height is the distance from a base to its opposite point, or vertex.

A base must be perpendicular to its height.



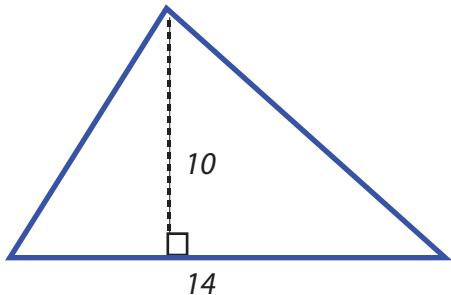
An acute triangle is a triangle that has three acute angles (angles that measure between 0 and 90 degrees).

Example:



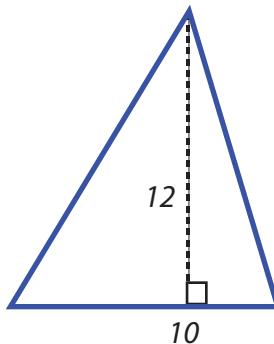
$$\begin{aligned}\text{Base} &= 8 \text{ ft.} \\ \text{Height} &= 6 \text{ ft.} \\ \text{Area} &= \frac{1}{2} \times 8 \times 6 \\ &= 24 \text{ ft.}\end{aligned}$$

1



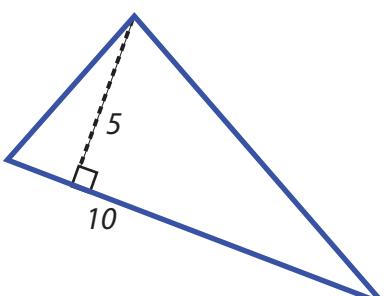
$$\begin{aligned}\text{Base} &= \underline{\hspace{2cm}} \text{ ft.} \\ \text{Height} &= \underline{\hspace{2cm}} \text{ ft.} \\ \text{Area} &= \\ &= \underline{\hspace{2cm}} \text{ sq.ft.}\end{aligned}$$

2



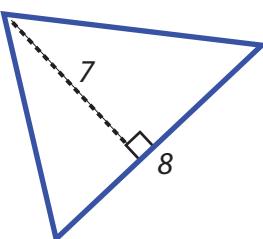
$$\begin{aligned}\text{Base} &= \underline{\hspace{2cm}} \text{ ft.} \\ \text{Height} &= \underline{\hspace{2cm}} \text{ ft.} \\ \text{Area} &= \\ &= \underline{\hspace{2cm}} \text{ sq.ft.}\end{aligned}$$

3



$$\begin{aligned}\text{Base} &= \underline{\hspace{2cm}} \text{ ft.} \\ \text{Height} &= \underline{\hspace{2cm}} \text{ ft.} \\ \text{Area} &= \\ &= \underline{\hspace{2cm}} \text{ sq.ft.}\end{aligned}$$

4



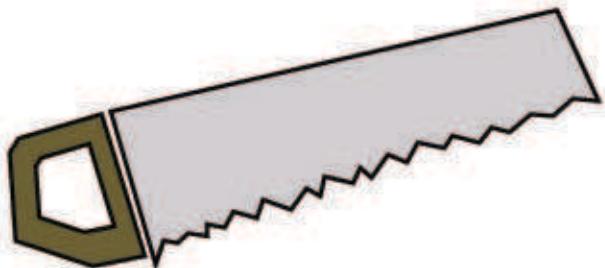
$$\begin{aligned}\text{Base} &= \underline{\hspace{2cm}} \text{ ft.} \\ \text{Height} &= \underline{\hspace{2cm}} \text{ ft.} \\ \text{Area} &= \\ &= \underline{\hspace{2cm}} \text{ sq.ft.}\end{aligned}$$

Units of Measurement

Help Franky decide what is the best unit of measurement to build areas of his house!

1. Length of the bedroom

- a. Inches
- b. Miles
- c. Millimeters
- d. Feet



2. Height of ceiling

- a. Feet
- b. Kilometers
- c. Miles
- d. Centimeters

3. Width of fence boards

- a. Miles
- b. Yards
- c. Inches
- d. Feet



4. Water for pool

- a. Cups
- b. Gallons
- c. Tablespoons
- d. Liters

5. Length of lawn

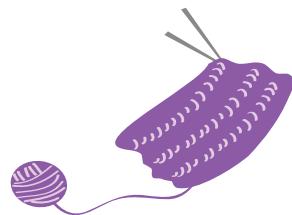
- a. Centimeters
- b. Kilometers
- c. Yards
- d. Inches

Hours, Days, and Weeks

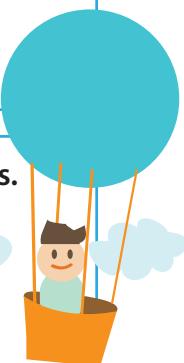
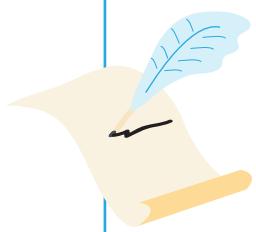
Answer the questions by converting the units of time.

Remember, 1 day equals 24 hours and 1 week equals 7 days.

Grandma knitted a scarf for me in 2 weeks. How many days did it take her?



Mr. Waterstone wrote a letter to Ms. Jacobs. It took 4 weeks to arrive.
How many days did it take?



Tom rode a hot air balloon across the ocean. He was on the balloon for 3 days.
How many hours was he on the balloon?



It took Mr. Carpenter a week and one day to fix the fence. How many hours did he spend fixing the fence?

Meg read a book in 3 weeks, 2 days, and 3 hours. How many hours did she spend reading the book?



The Right Time

Answer the questions by converting the units of time.
Remember, 1 hour equals 60 minutes and 1 minute equals 60 seconds.

Pete and Sam practice singing 2 hours everyday. How many minutes do they practice each day?



Jenny plays her trumpet for 1 hour and 45 minutes every evening. How many minutes does she practice each night?



Lynn gives a piano lesson after school everyday. Today she taught for 95 minutes. How many hours did she teach today?



Amy played flute during her recital. The song lasted for 303 seconds. How many minutes did she play?



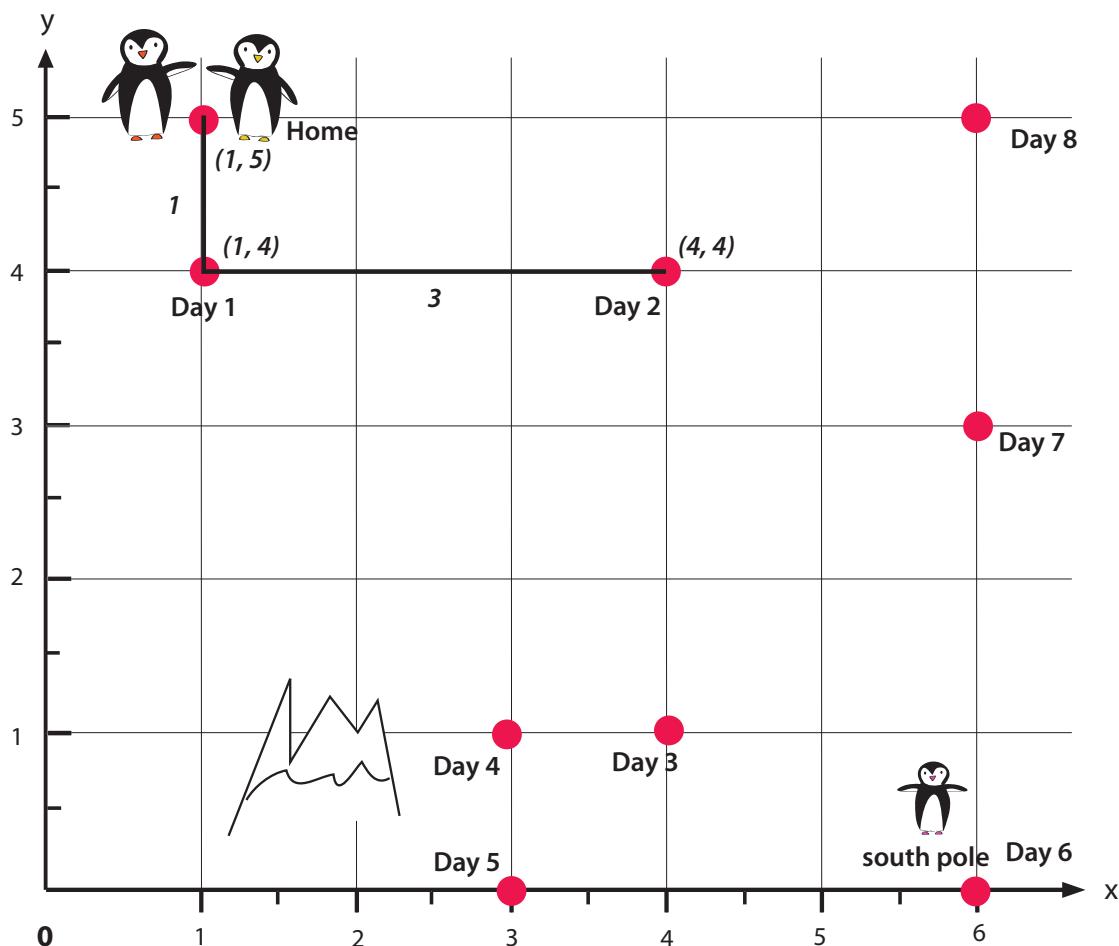
Denny danced to all the songs on his mp3 player. His mp3 player has 200 minutes and 180 seconds of music. How many hours did he dance?



Traveling to the South Pole: Practice Coordinates and Perimeter

The penguin parents are traveling to the South Pole to pick up their baby, stopping at each point on the grid along the way. Then together, the three of them will go back home in a different route. See how far their route is by finding the distance between the coordinates (see examples below).

Review: The first number refers to X coordinate. The second number refers to Y coordinate.



Example:

Day 1: Distance between home (1, 5) to Day 1 stop (1, 4). Subtract difference of Y-value of each location. Y value of home = 5, Y value of Day 1 stop = 4.

Therefore, the distance is $5 - 4 = 1$. Then draw a line from each point and write 1.

Day 2: Distance between Day 1 stop (1, 4) to Day 2 stop (4, 4). Subtract difference of X-value of each location. X value of Day 2 stop = 4, X value of Day 1 stop = 1.

Therefore, the distance is $4 - 1 = 3$. Then draw a line from each point and write 3.

PERIMETER MATCH

Find the **perimeter** of each rectangle, then draw at least 2 rectangles that have the same perimeter.

4 ft
6 ft
20 ft

5 ft
5 ft

5 ft
3 ft
—

12 ft
2 ft
—

Geometry Detective: Triangle

Find area of each triangle using clues from the lengths provided. Show your work.

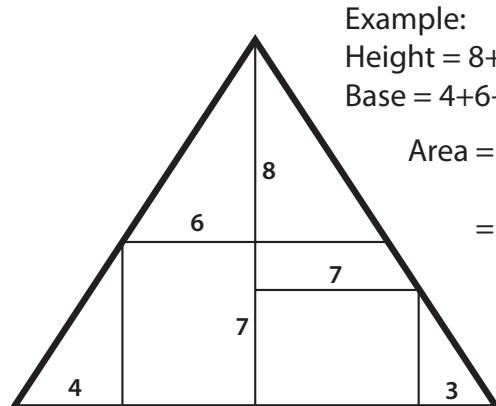
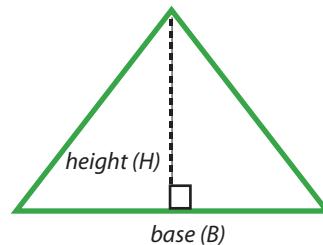
Review:

$$\text{Triangle Area} = \frac{1}{2} \times \text{base} \times \text{height}$$

The height of a triangle is the distance from the base to its opposite vertex, or angle.

The base of a triangle can be any of its sides.

The height line and base must be perpendicular to each other.



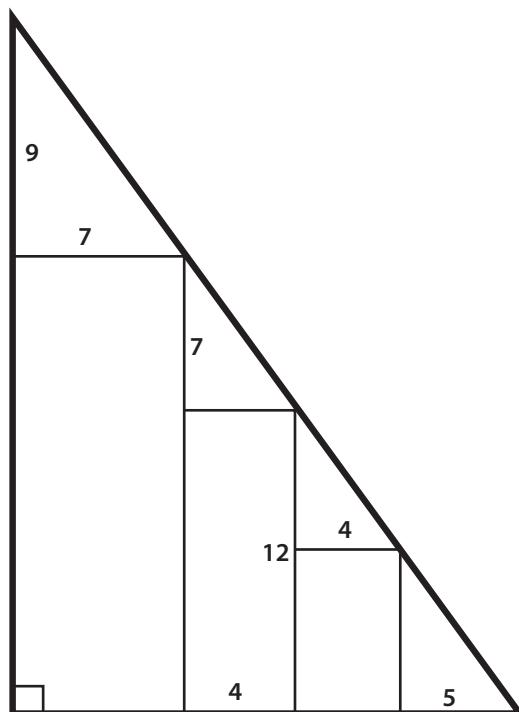
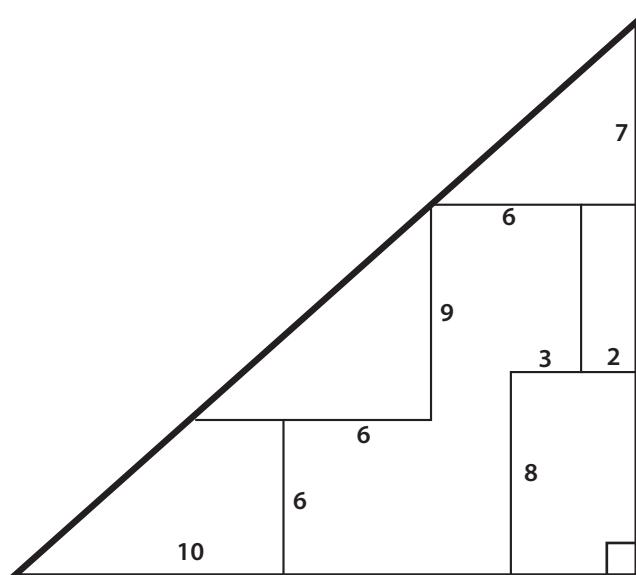
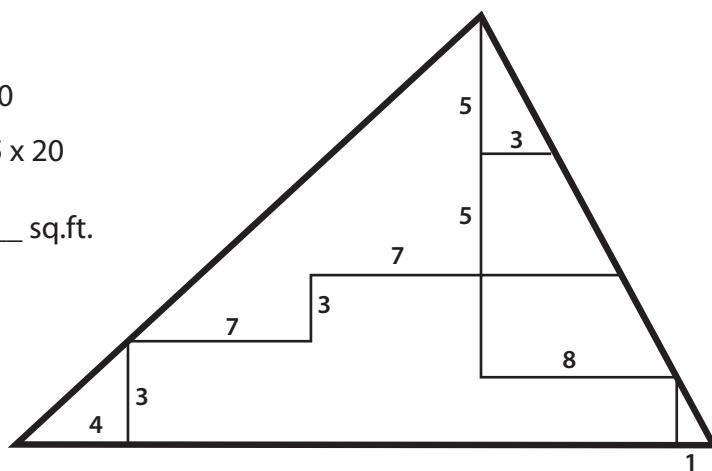
Example:

$$\text{Height} = 8+7 = 15$$

$$\text{Base} = 4+6+7+3 = 20$$

$$\text{Area} = \frac{1}{2} \times 15 \times 20$$

$$= \underline{\quad 150 \quad} \text{ sq.ft.}$$



Obtuse Triangle: Practice Finding Area

Use the clues provided to find the area of each triangle. Show your work.

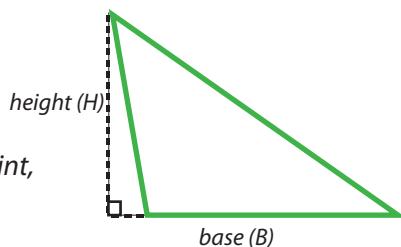
Review:

$$\text{Triangle Area} = \frac{1}{2} \times \text{base} \times \text{height}$$

The base of a triangle can be any one of its sides.

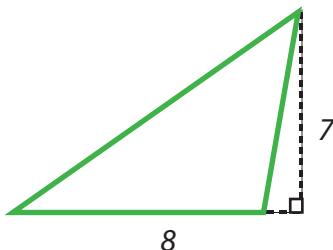
The height is the distance from a base to its opposite point, or vertex.

A base must be perpendicular to its height.



An obtuse triangle is a triangle that has one obtuse angle (an angle that is greater than 90 degrees).

Example:

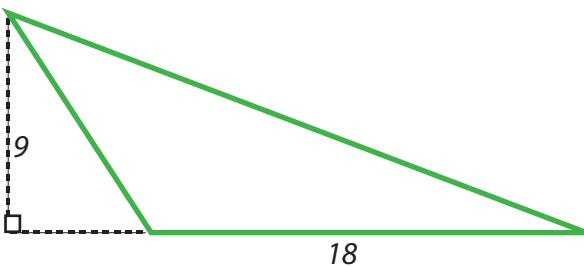


$$\text{Base} = \underline{\quad 8 \quad} \text{ ft.}$$

$$\text{Height} = \underline{\quad 7 \quad} \text{ ft.}$$

$$\begin{aligned}\text{Area} &= \frac{1}{2} \times 8 \times 7 \\ &= \underline{\quad 28 \quad} \text{ ft.}\end{aligned}$$

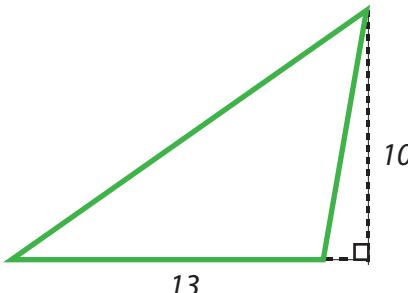
1



$$\begin{aligned}\text{Base} &= \underline{\quad \quad \quad} \text{ ft.} \\ \text{Height} &= \underline{\quad \quad \quad} \text{ ft.}\end{aligned}$$

$$\begin{aligned}\text{Area} &= \\ &= \underline{\quad \quad \quad} \text{ sq.ft.}\end{aligned}$$

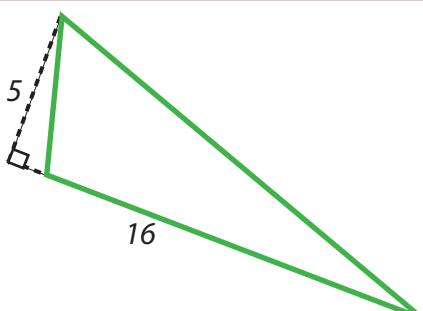
2



$$\begin{aligned}\text{Base} &= \underline{\quad \quad \quad} \text{ ft.} \\ \text{Height} &= \underline{\quad \quad \quad} \text{ ft.}\end{aligned}$$

$$\begin{aligned}\text{Area} &= \\ &= \underline{\quad \quad \quad} \text{ sq.ft.}\end{aligned}$$

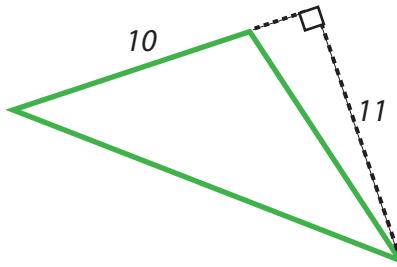
3



$$\begin{aligned}\text{Base} &= \underline{\quad \quad \quad} \text{ ft.} \\ \text{Height} &= \underline{\quad \quad \quad} \text{ ft.}\end{aligned}$$

$$\begin{aligned}\text{Area} &= \\ &= \underline{\quad \quad \quad} \text{ sq.ft.}\end{aligned}$$

4

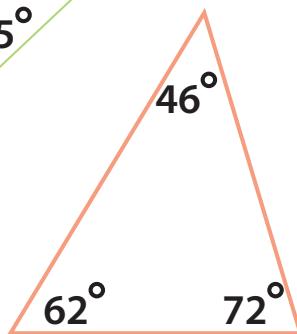
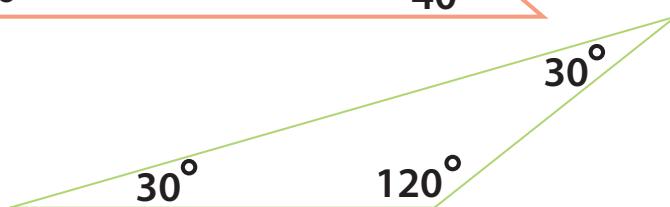
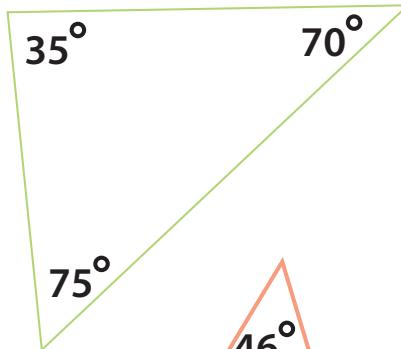
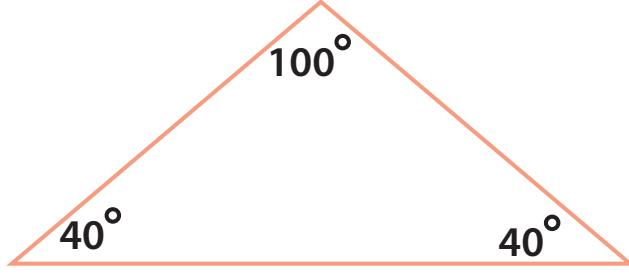
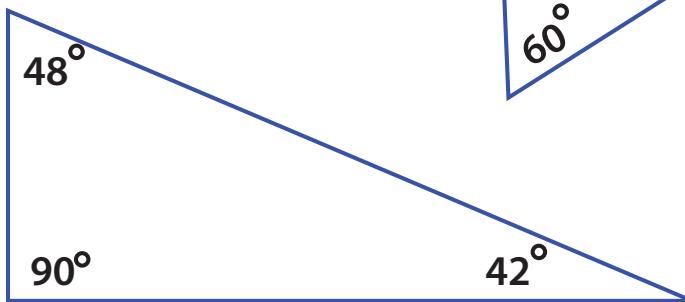
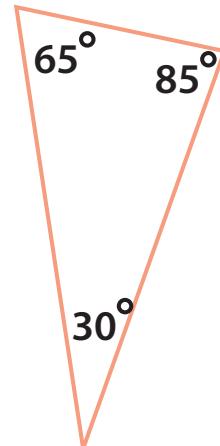
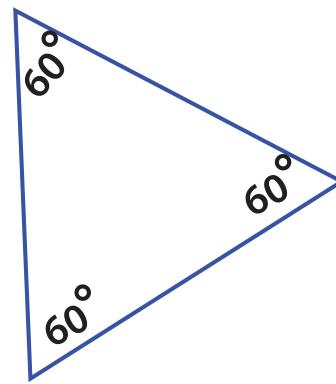
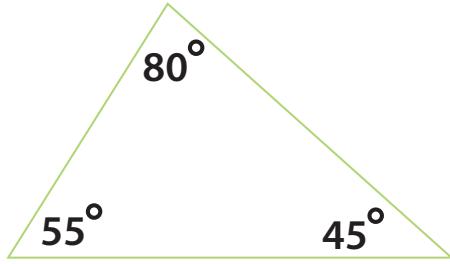


$$\begin{aligned}\text{Base} &= \underline{\quad \quad \quad} \text{ ft.} \\ \text{Height} &= \underline{\quad \quad \quad} \text{ ft.}\end{aligned}$$

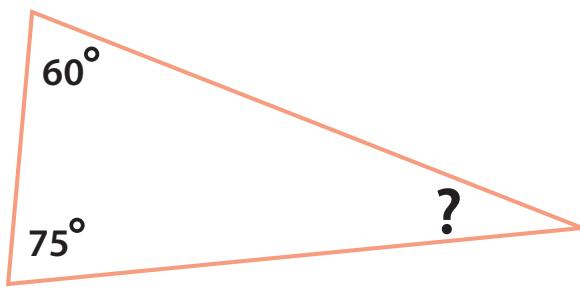
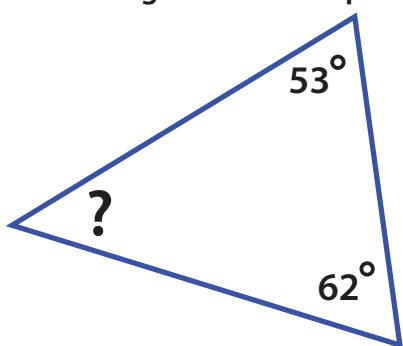
$$\begin{aligned}\text{Area} &= \\ &= \underline{\quad \quad \quad} \text{ sq.ft.}\end{aligned}$$

Identifying Triangles: Acute Triangles

An acute triangle is a triangle that has three acute angles (angles that each measure less than 90 degrees). Circle the acute triangles below.

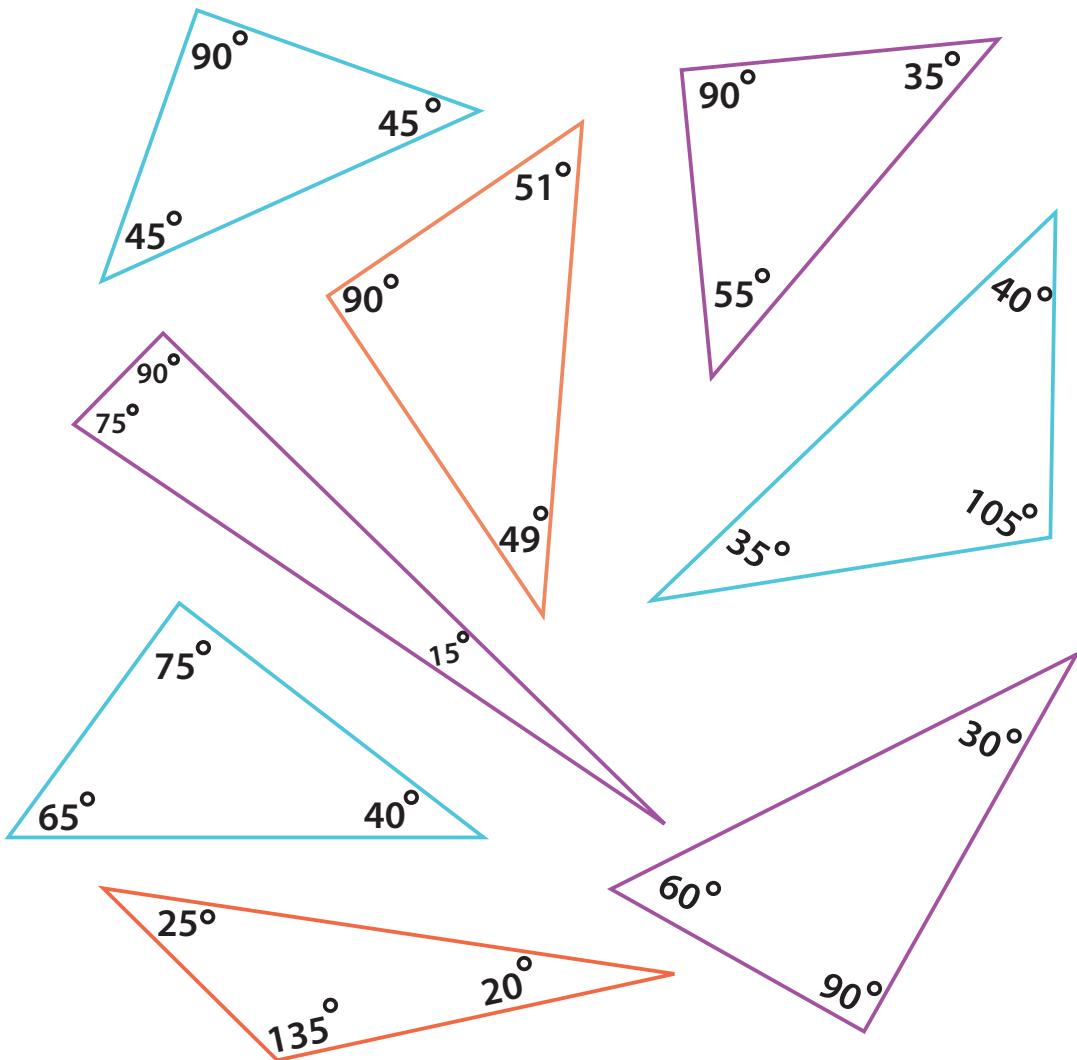


Find the value of the missing angles in these acute triangles. Remember, the three angles in a triangle must add up to 180 degrees.

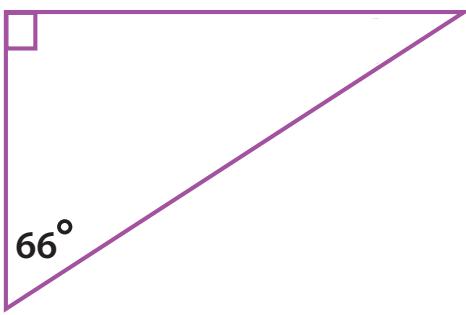
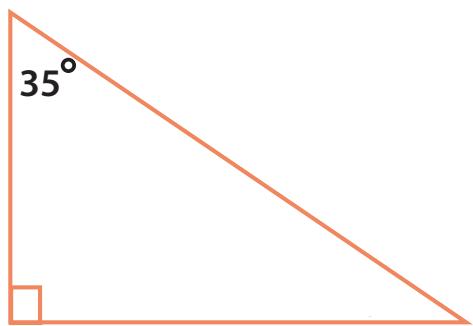


Identifying Triangles: Right Triangles

A right triangle is a triangle that has one right angle (90 degree angle). Circle the triangles that is a right triangle.

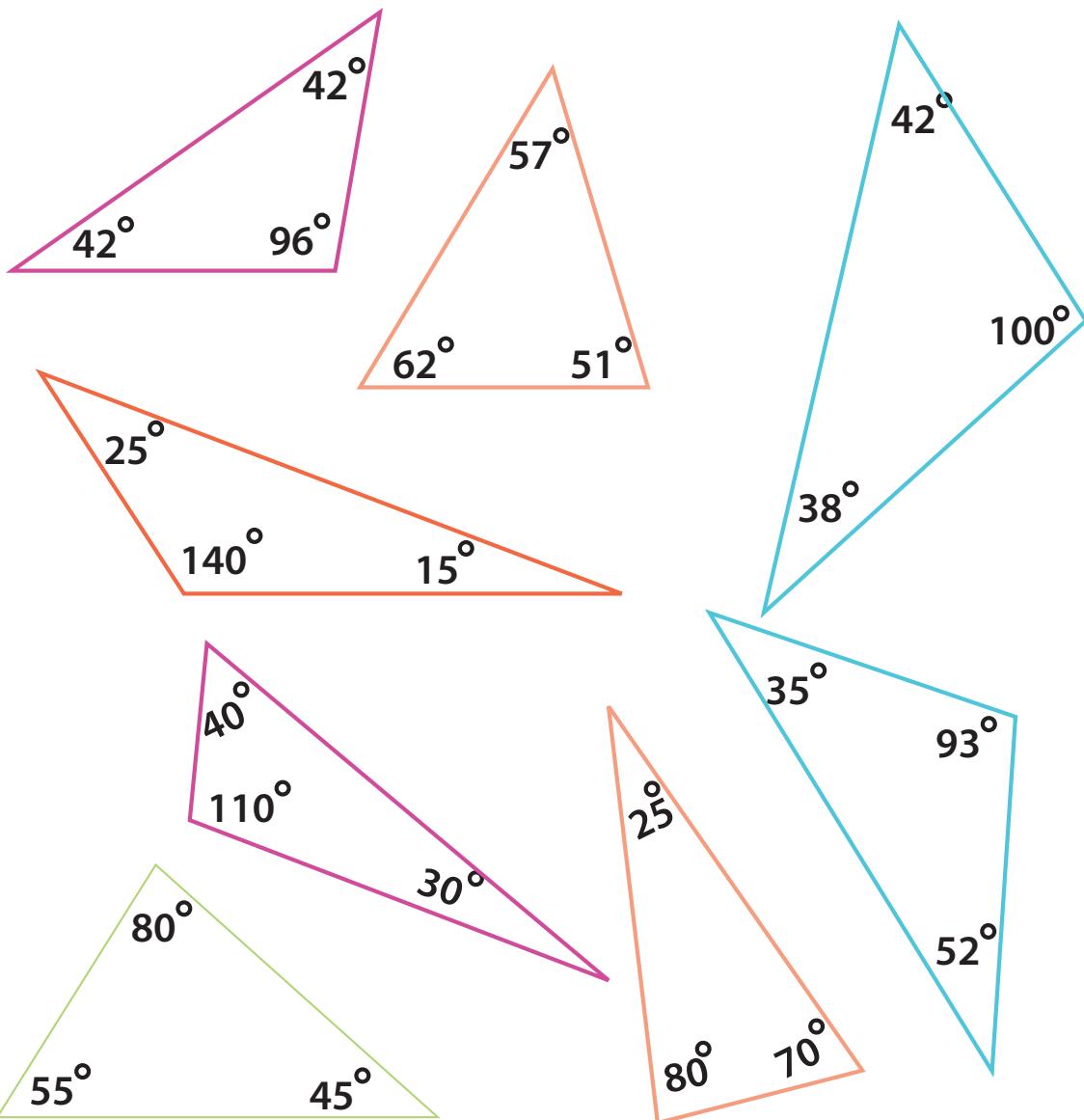


Find the value of the missing angles in these right triangles. Remember, three angles in every triangle always add up to 180 degree.

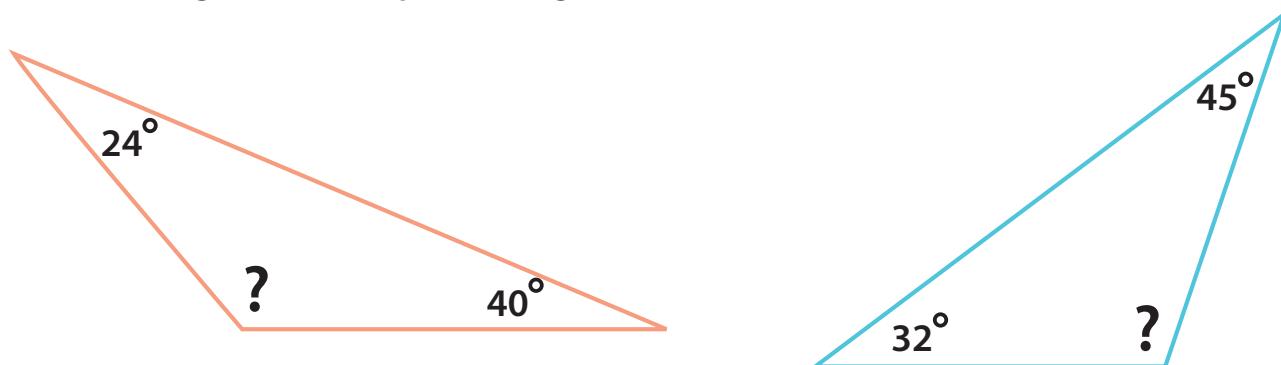


Identifying Triangles: Obtuse Triangles

An obtuse triangle is a triangle that has one obtuse angle (an angle that measures more than 90 degrees). Circle the obtuse triangles below.



Find the value of the missing angles in these obtuse triangles. Remember, the three angles in a triangle must add up to 180 degrees.



Geometry Detective: Triangle

Find the area of each triangle using clues from the lengths provided. Show your work.

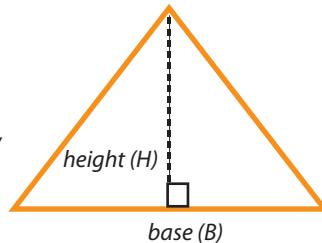
Review:

$$\text{Triangle Area} = \frac{1}{2} \times \text{base} \times \text{height}$$

The base of a triangle can be any one of its sides.

The height is the distance from a base to its opposite point, or vertex.

A base must be perpendicular to its height.



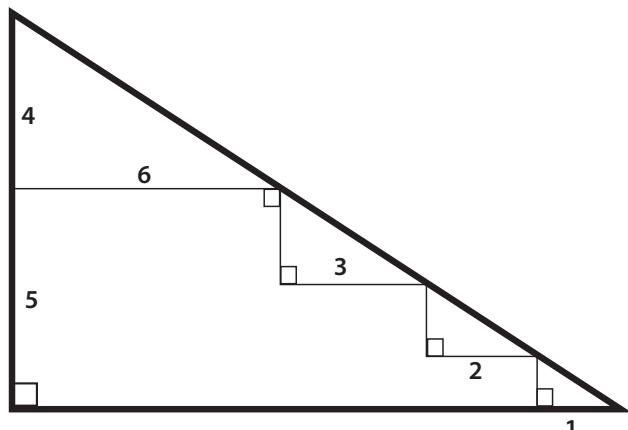
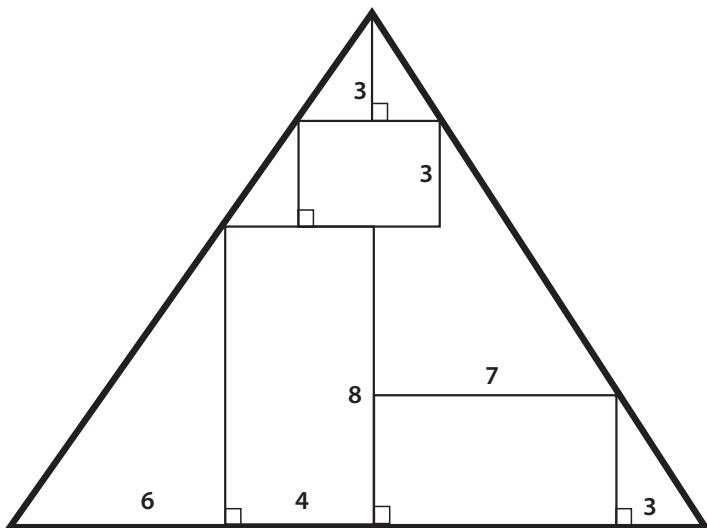
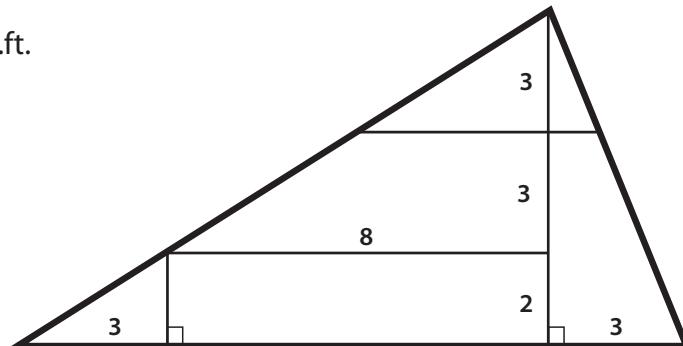
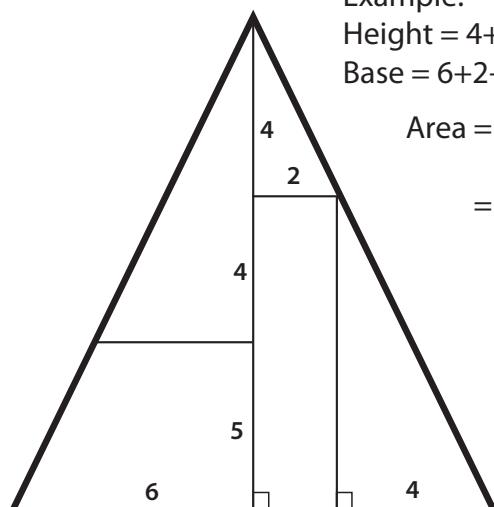
Example:

$$\text{Height} = 4+4+5 = 13$$

$$\text{Base} = 6+2+4 = 12$$

$$\text{Area} = \frac{1}{2} \times 13 \times 12$$

$$= \underline{\quad 78 \quad} \text{ sq.ft.}$$



PERIMETER MATCH

Find the **perimeter** of each rectangle, then draw at least 2 rectangles that have the same perimeter.

9 ft



4 ft

26 ft

7 ft



6 ft

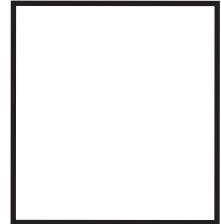
4 ft



2 ft

—

3 ft



6 ft

—

Right Triangle: Practice Finding Area

Use the clues provided to find the area of each triangle. Show your work.

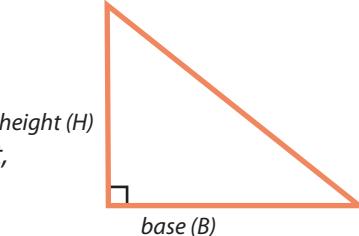
Review:

$$\text{Triangle Area} = \frac{1}{2} \times \text{base} \times \text{height}$$

The base of a triangle can be any one of its sides.

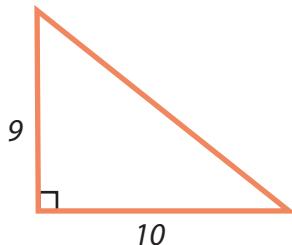
The height is the distance from a base to its opposite point, or vertex.

A base must be perpendicular to its height.



A right triangle is a triangle that has one right angle (90 degree angle). So the height is the side of a triangle.

Example:

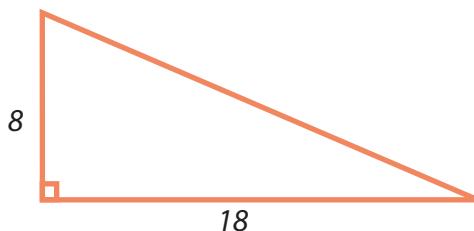


$$\text{Base} = \underline{\quad 10 \quad} \text{ ft.}$$

$$\text{Height} = \underline{\quad 9 \quad} \text{ ft.}$$

$$\begin{aligned}\text{Area} &= \frac{1}{2} \times 10 \times 9 \\ &= \underline{\quad 45 \quad} \text{ ft.}\end{aligned}$$

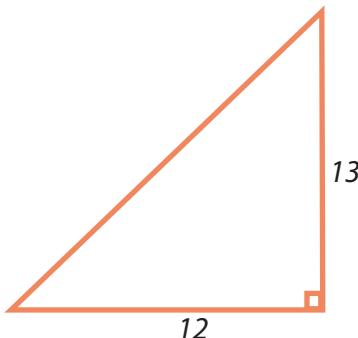
1



$$\begin{aligned}\text{Base} &= \underline{\quad \quad \quad} \text{ ft.} \\ \text{Height} &= \underline{\quad \quad \quad} \text{ ft.}\end{aligned}$$

$$\begin{aligned}\text{Area} &= \\ &= \underline{\quad \quad \quad} \text{ sq.ft.}\end{aligned}$$

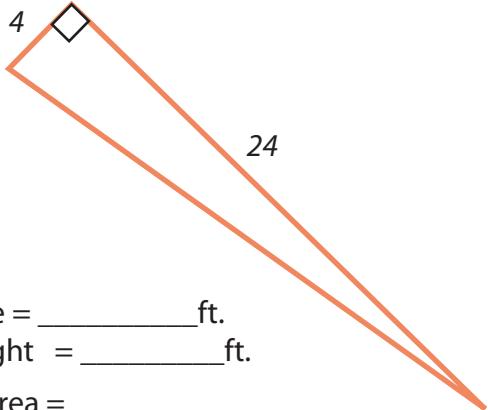
2



$$\begin{aligned}\text{Base} &= \underline{\quad \quad \quad} \text{ ft.} \\ \text{Height} &= \underline{\quad \quad \quad} \text{ ft.}\end{aligned}$$

$$\begin{aligned}\text{Area} &= \\ &= \underline{\quad \quad \quad} \text{ sq.ft.}\end{aligned}$$

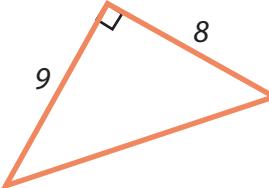
3



$$\begin{aligned}\text{Base} &= \underline{\quad \quad \quad} \text{ ft.} \\ \text{Height} &= \underline{\quad \quad \quad} \text{ ft.}\end{aligned}$$

$$\begin{aligned}\text{Area} &= \\ &= \underline{\quad \quad \quad} \text{ sq.ft.}\end{aligned}$$

4



$$\begin{aligned}\text{Base} &= \underline{\quad \quad \quad} \text{ ft.} \\ \text{Height} &= \underline{\quad \quad \quad} \text{ ft.}\end{aligned}$$

$$\begin{aligned}\text{Area} &= \\ &= \underline{\quad \quad \quad} \text{ sq.ft.}\end{aligned}$$

PERIMETER MATCH

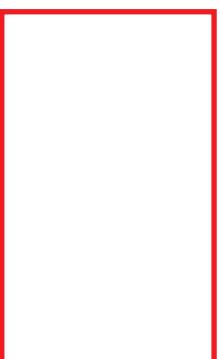
Find the **perimeter** of each rectangle, then draw at least 2 rectangles that have the same perimeter.

8 ft



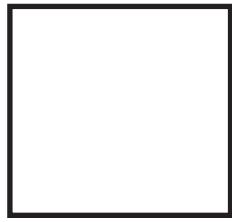
6 ft

10 ft



5 ft

6 ft



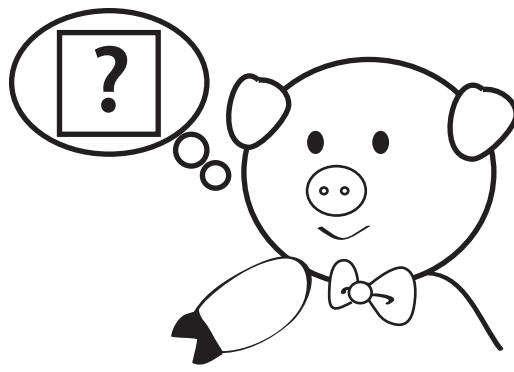
5 ft

2 ft



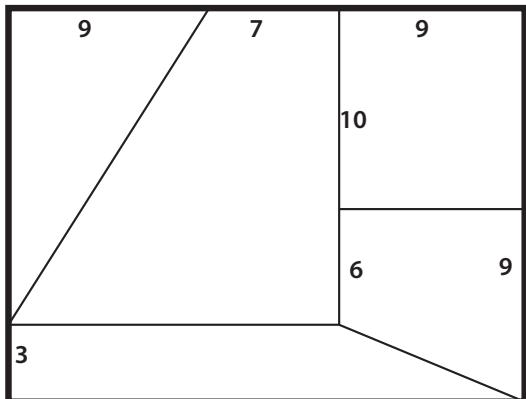
Finding Area: Medium

Help Piggy pick a room with the largest area.
Add up the sides using the lengths of each tile,
then find the area. Remember, Area = L x W.



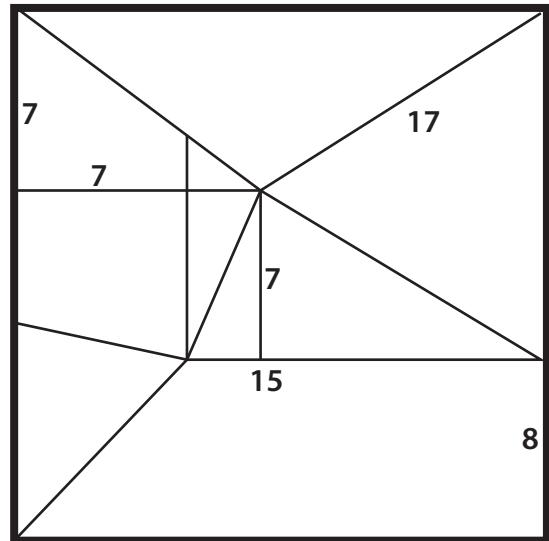
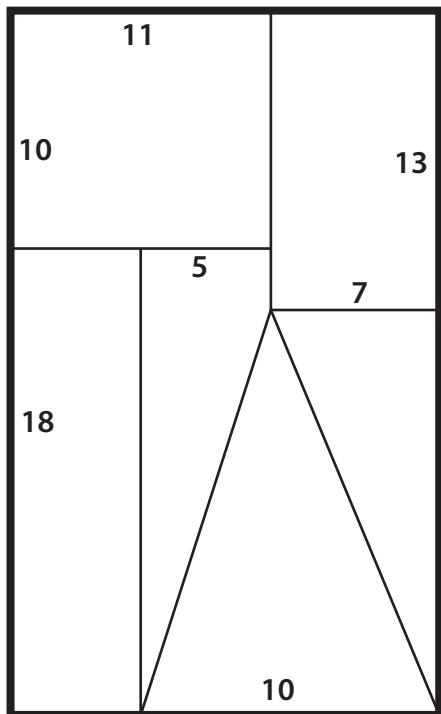
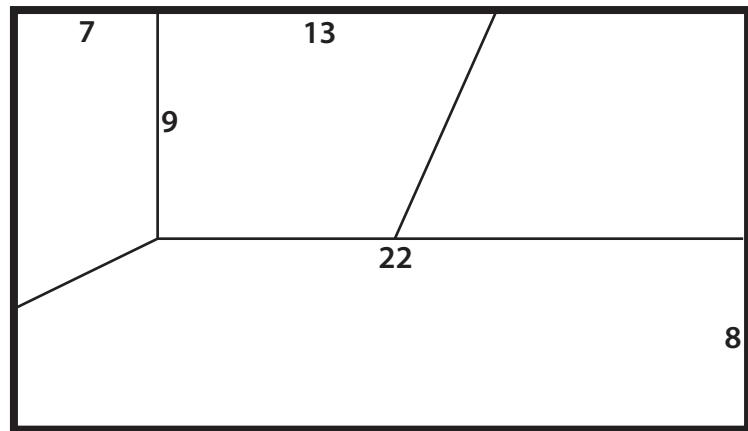
Example:

$$9 + 7 + 9 = 25$$



$$\text{Area} = 25 \times 19 = 475 \text{ sq.ft.}$$

$$10 + 6 + 3 = 19$$



Farming Fun!

Divide the land into different sections to plant each type of vegetable. Color and label it. Each square equals one square foot.



= 40 square feet



$\circ = 22$ square feet



$$= 24 \text{ square feet}$$



$$= 36 \text{ square feet}$$



= 18 square feet



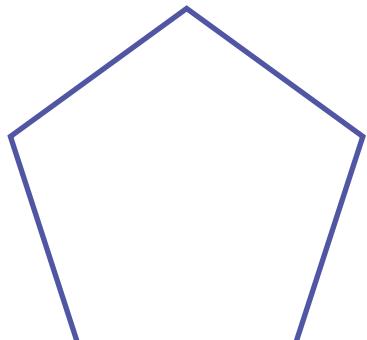
equals 1 square foot

Pentagon: Calculating Area

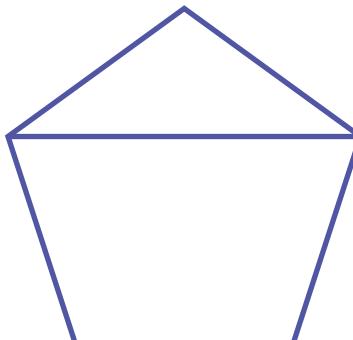


A pentagon contains many shapes that you probably already know. Use a ruler to divide the pentagon into regular shapes that you are familiar with. Then, name the shapes you created. This will help you practice finding the area of irregular shapes.

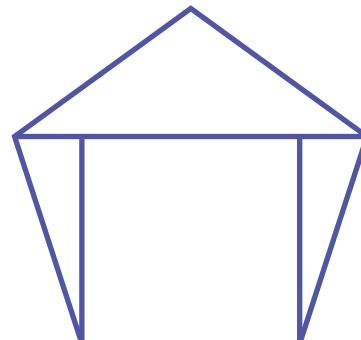
Example:



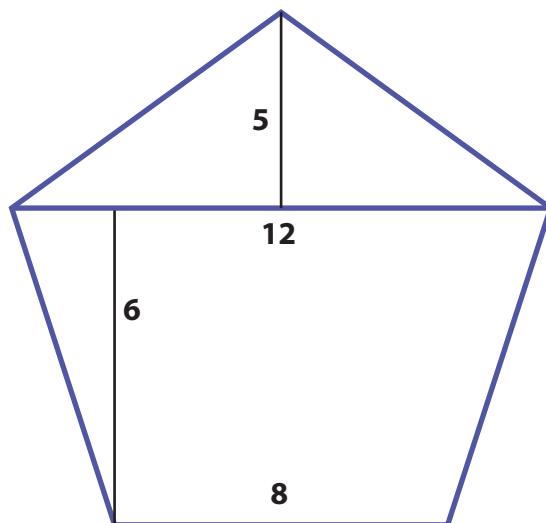
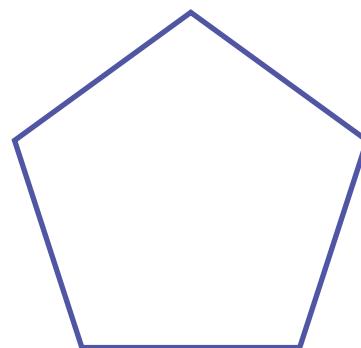
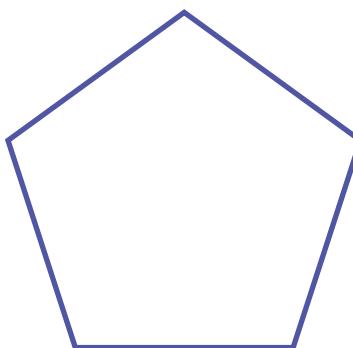
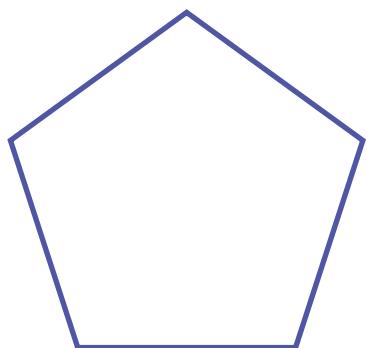
One pentagon



One triangle
One trapezoid



Three triangles
One rectangle

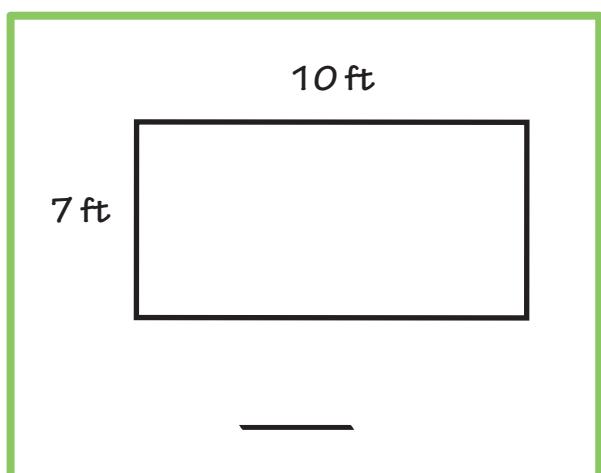
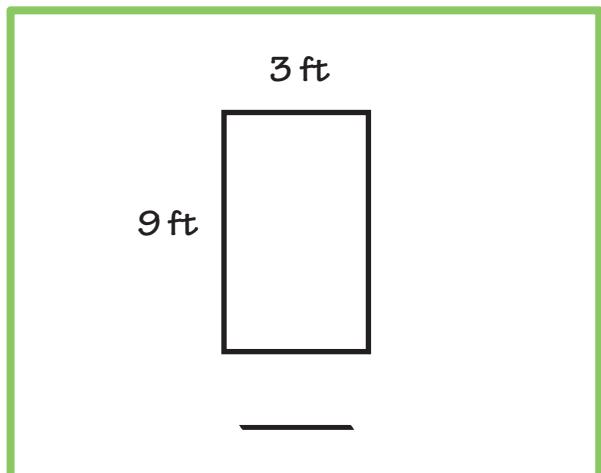
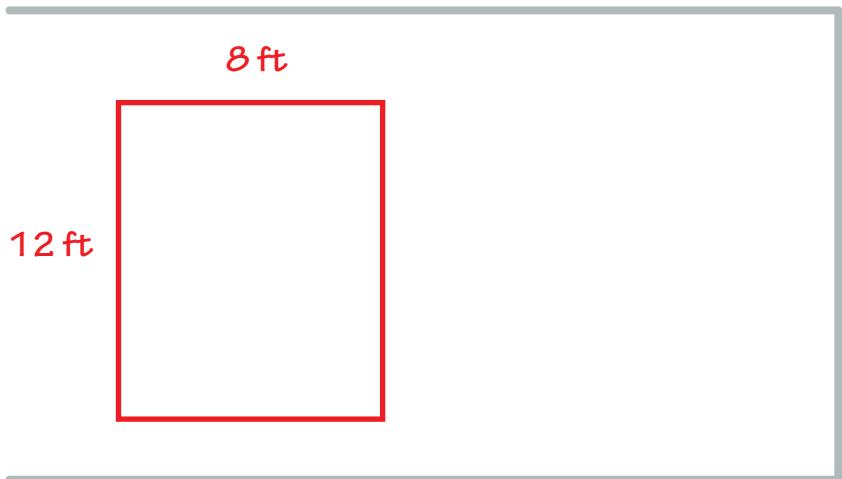
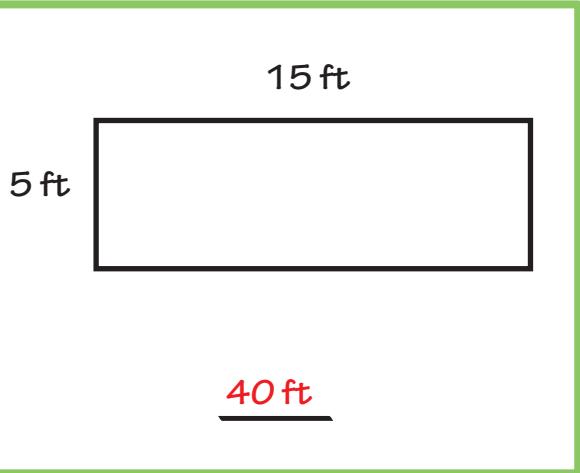


Challenge!

Calculate the area of this pentagon using the heights and lengths of the geometric shapes.

PERIMETER MATCH

Find the **perimeter** of each rectangle, then draw at least 2 rectangles that have the same perimeter.



Find a New Home

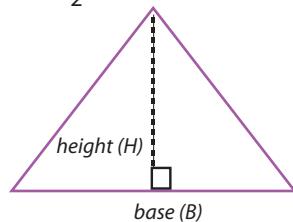


Help Mr. Rabbit find his new home. The total area of his place has to be at least **60** square feet. This includes the area of a roof (triangle) plus the area of the house (rectangle).

Review:

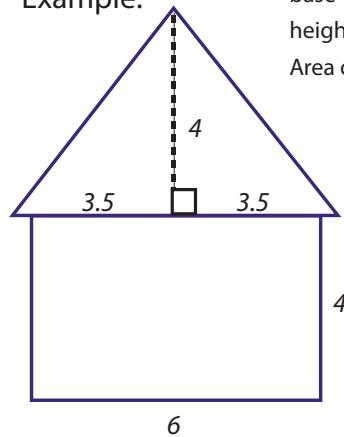
Rectangle Area = length x width

Triangle Area = $\frac{1}{2} \times \text{base} \times \text{height}$



The base of a triangle can be any one of its sides.
The height is the distance from a base to its opposite point, or vertex.
A base must be perpendicular to its height.

Example:



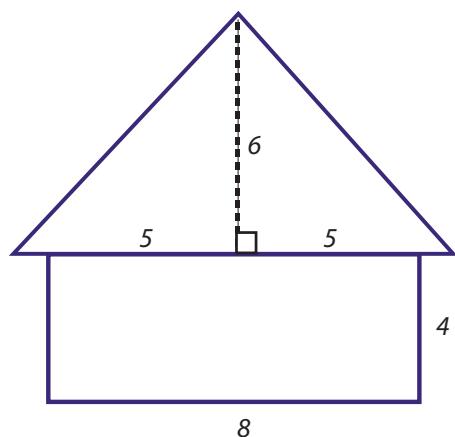
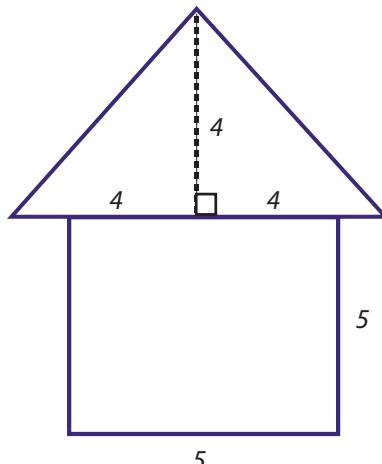
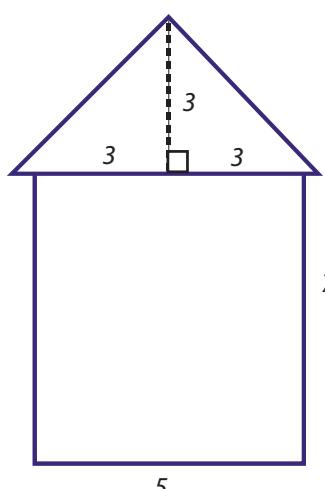
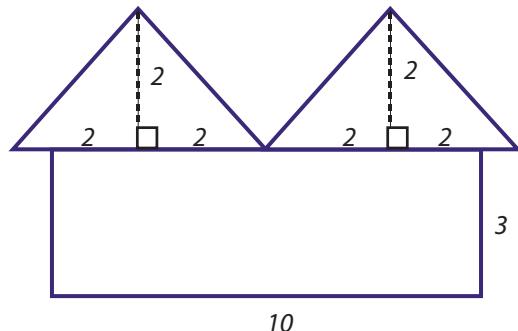
$$\text{base} = 3.5 + 3.5 = 7$$

$$\text{height} = 4$$

$$\begin{aligned}\text{Area of the roof} &= \frac{1}{2} \times \text{base} \times \text{height} \\ &= \frac{1}{2} \times 7 \times 4 = 14\end{aligned}$$

$$\text{Area of the rectangle} = 6 \times 4 = 24$$

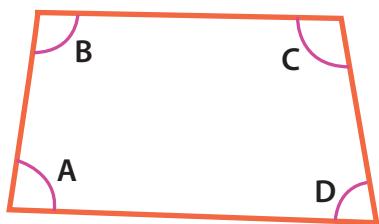
$$\text{Total area} = 14 + 24 = 38 \text{ square feet.}$$



Which home should Mr. Rabbit move into? Circle it.

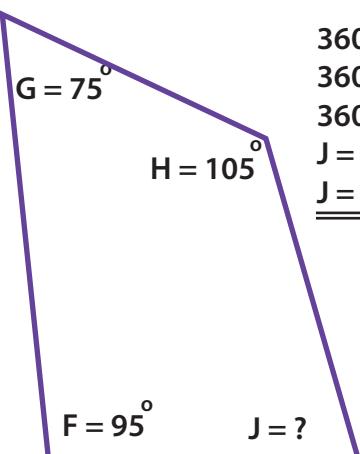
The Missing Angle: Quadrilaterals

In every quadrilateral, all four angles add up to 360° .

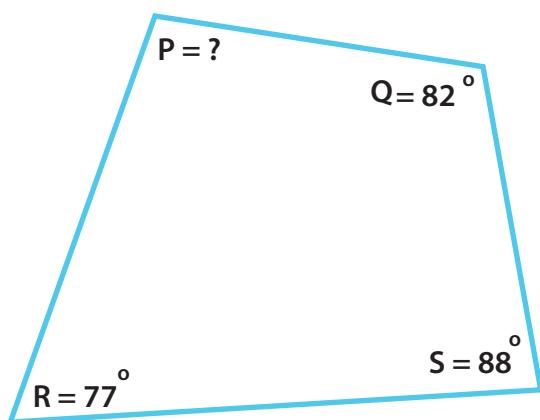
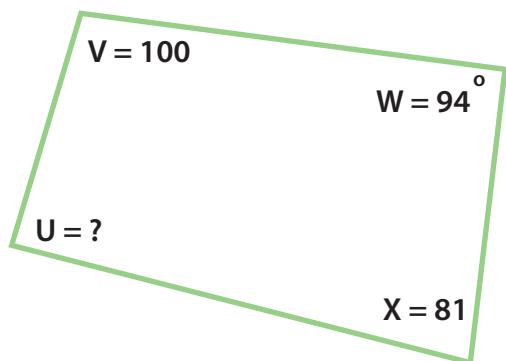
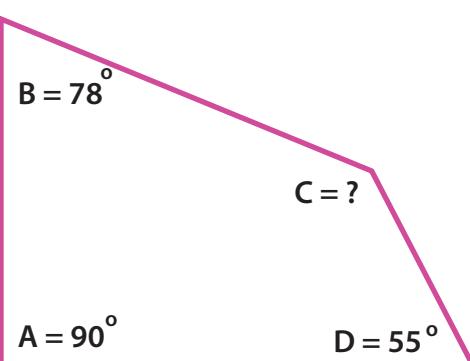


$$360 = A + B + C + D$$

Use this rule to find the missing angle in the quadrilaterals. See the example.



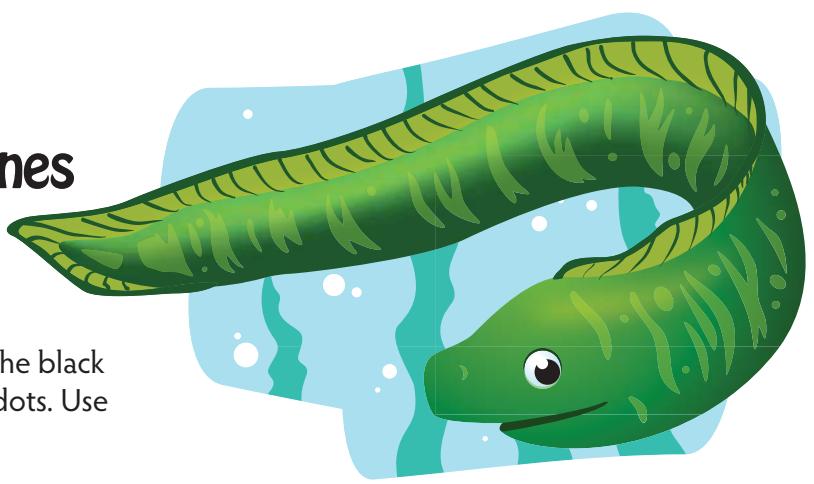
$$\begin{aligned} 360^\circ &= F + G + H + J \\ 360^\circ &= 95^\circ + 75^\circ + 105^\circ + J \\ 360^\circ &= 275^\circ + J \\ J &= 360^\circ - 275^\circ \\ \underline{\underline{J = 85^\circ}} \end{aligned}$$



Parallel and Perpendicular lines

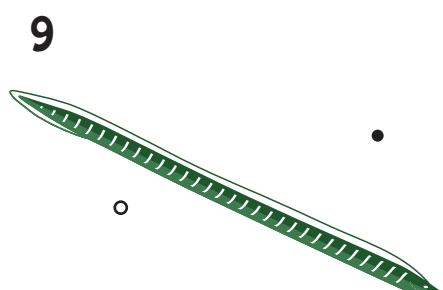
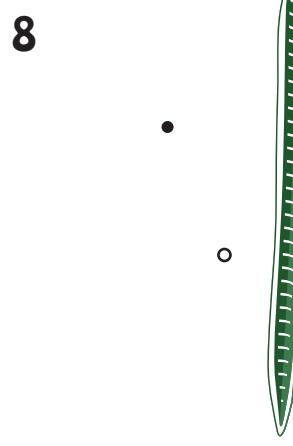
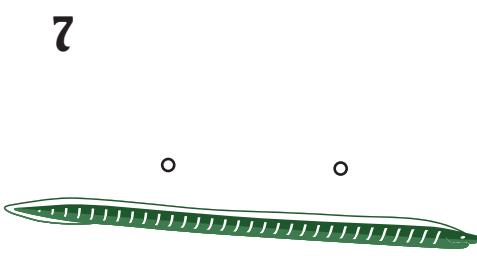
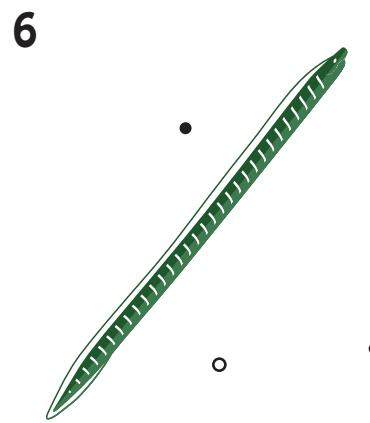
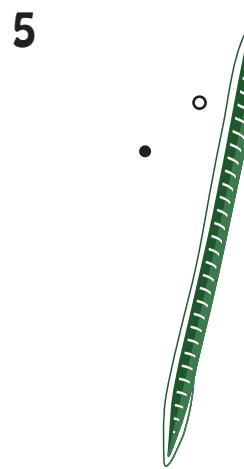
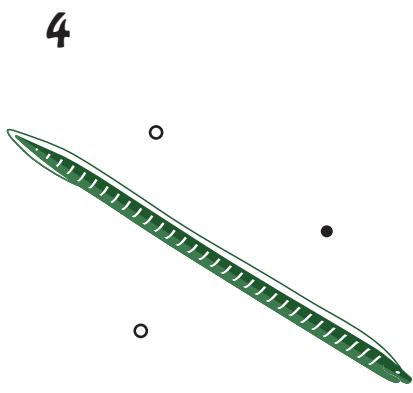
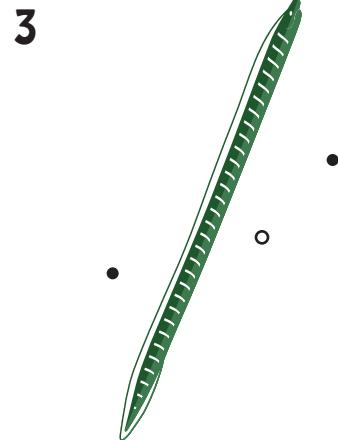
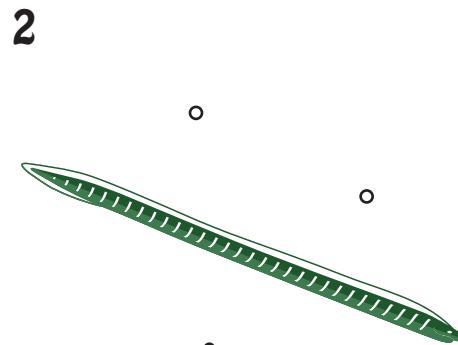
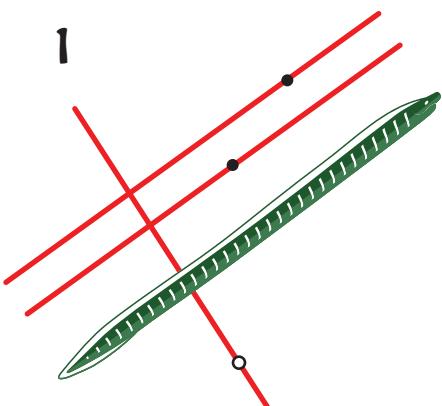
Elouisa the Eel

Elouisa the Eel needs help learning parallel and perpendicular lines. Draw parallel lines through the black dots and perpendicular lines through the white dots. Use a ruler to help you draw straight lines.



● Parallel

○ Perpendicular



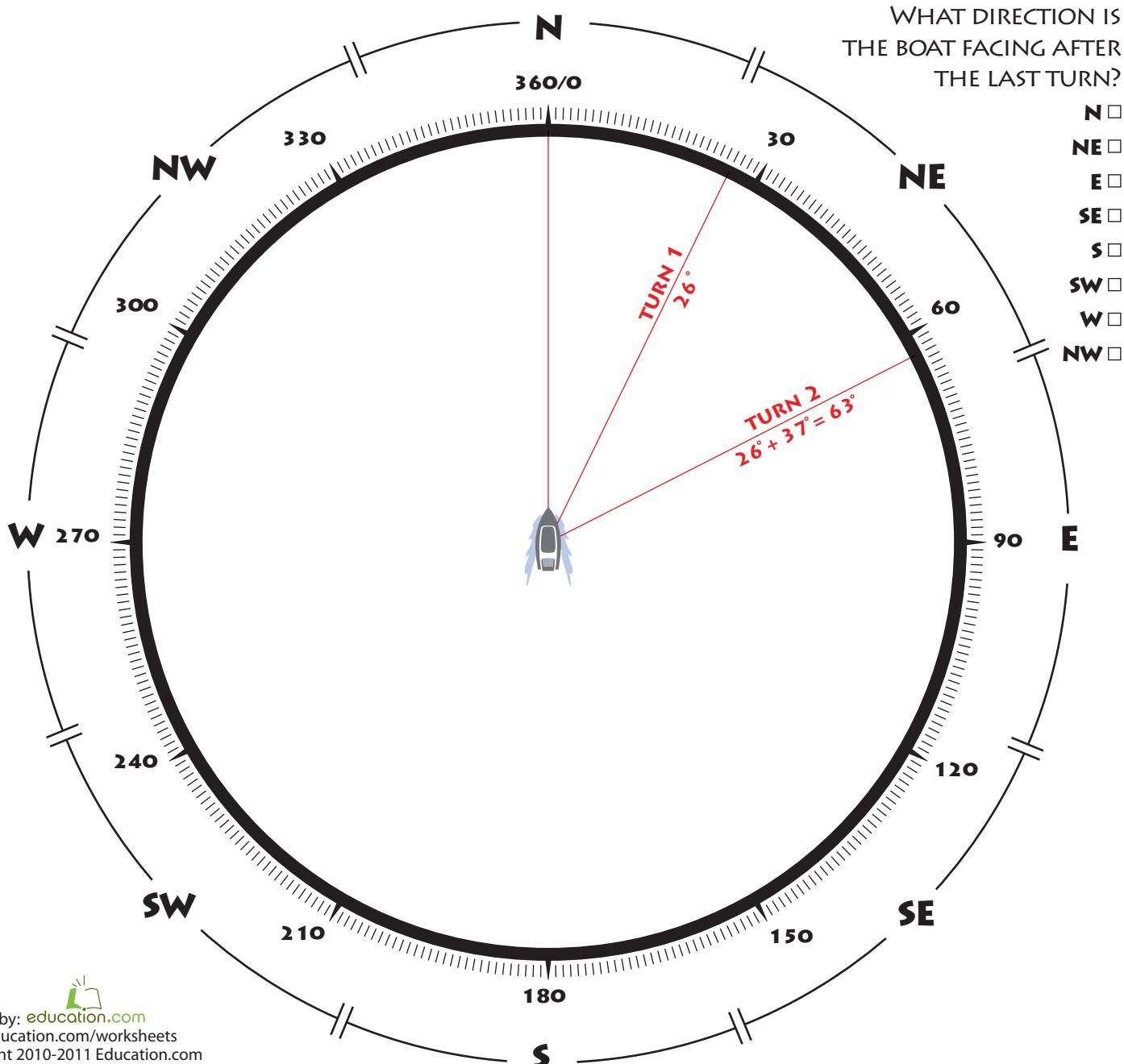
ANGLE STEERING 1

Steering a ship requires practice and precision. It also requires you to think about math and angles.

Turn the ship's wheel according to the angle measurements given. See the examples below. With each new turn, indicate the ship's new direction by drawing a line towards it. Turn clockwise if the angle is positive, counterclockwise if it is negative. Use a ruler to help you draw straight lines.

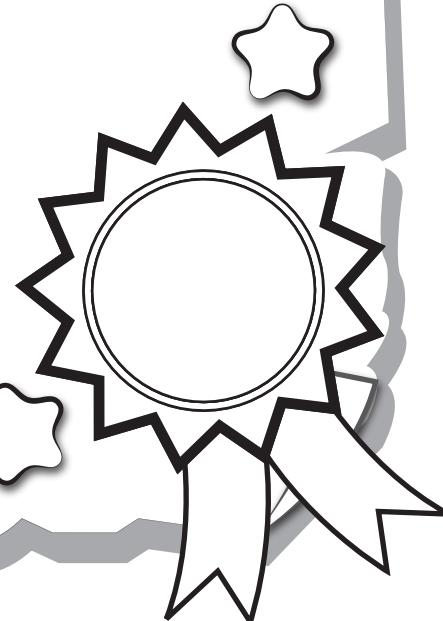


	1	2	3	4	5	6	7	8	9	10	11	12
Turn Degrees	+26°	+37°	-51°	+153°	-92°	-30°	-9°	+185°	-67°	+49°	+93°	-60°
New Direction	26°	63°										



Great job!

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Answer Sheets

Geometry and Measurement

Acute Triangle: Practice Finding Area

Units of Measurement

Hours, Days, and Weeks

The Right Time

Traveling to the South Pole: Practice Coordinates and Perimeter

Perimeter Match #1

Geometry Detective: Triangle #1

Obtuse Triangle: Practice Finding Area

Identifying Triangles: Acute Triangles

Identifying Triangles: Right Triangles

Identifying Triangles: Obtuse Triangles

Geometry Detective: Triangle #2

Perimeter Match #2

Right Triangle: Practice Finding Area

Perimeter Match #3

Finding Area: Medium

Pentagon: Calculating Area

Perimeter Match #4

Find a New Home

The Missing Angle: Quadrilaterals

Parallel and Perpendicular Lines

Angle Steering

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Answer Sheet



Answer Sheet

Acute Triangle: Practice Finding Area

Use the clues provided to find the area of each triangle. Show your work.

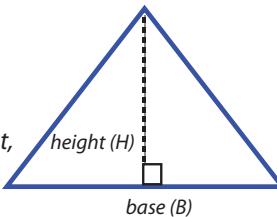
Review:

$$\text{Triangle Area} = \frac{1}{2} \times \text{base} \times \text{height}$$

The base of a triangle can be any one of its sides.

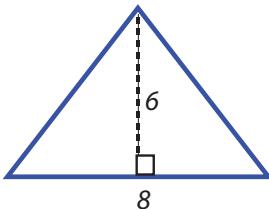
The height is the distance from a base to its opposite point, or vertex.

A base must be perpendicular to its height.



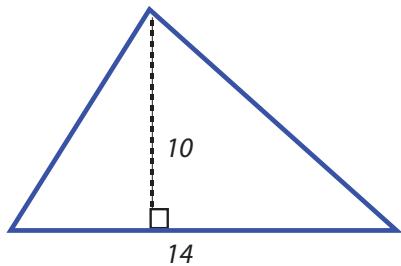
An acute triangle is a triangle that has three acute angles (angles that measure between 0 and 90 degrees).

Example:



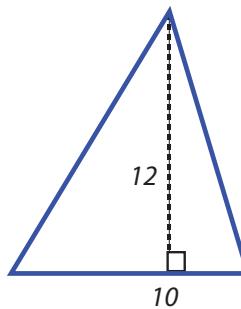
$$\begin{aligned}\text{Base} &= 8 \text{ ft.} \\ \text{Height} &= 6 \text{ ft.} \\ \text{Area} &= \frac{1}{2} \times 8 \times 6 \\ &= 24 \text{ ft.}\end{aligned}$$

1



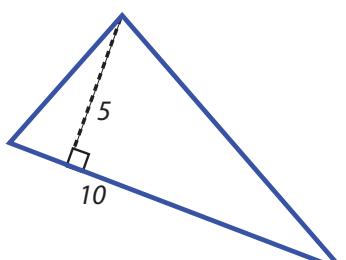
$$\begin{aligned}\text{Base} &= 14 \text{ ft.} \\ \text{Height} &= 10 \text{ ft.} \\ \text{Area} &= \frac{1}{2} \times 14 \times 10 \\ &= 70 \text{ sq.ft.}\end{aligned}$$

2



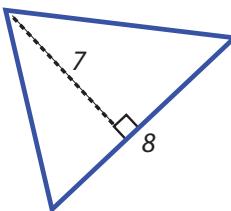
$$\begin{aligned}\text{Base} &= 10 \text{ ft.} \\ \text{Height} &= 12 \text{ ft.} \\ \text{Area} &= \frac{1}{2} \times 10 \times 12 \\ &= 60 \text{ sq.ft.}\end{aligned}$$

3



$$\begin{aligned}\text{Base} &= 10 \text{ ft.} \\ \text{Height} &= 5 \text{ ft.} \\ \text{Area} &= \frac{1}{2} \times 10 \times 5 \\ &= 25 \text{ sq.ft.}\end{aligned}$$

4



$$\begin{aligned}\text{Base} &= 8 \text{ ft.} \\ \text{Height} &= 7 \text{ ft.} \\ \text{Area} &= \frac{1}{2} \times 8 \times 7 \\ &= 28 \text{ sq.ft.}\end{aligned}$$

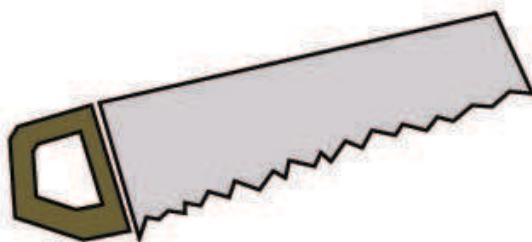
Answer Sheet

Units of Measurement

Help Franky decide what is the best unit of measurement to build areas of his house!

1. Length of the bedroom

- a. Inches
- b. Miles
- c. Millimeters
- d. Feet



2. Height of ceiling

- a. Feet
- b. Kilometers
- c. Miles
- d. Centimeters

3. Width of fence boards

- a. Miles
- b. Yards
- c. Inches
- d. Feet



4. Water for pool

- a. Cups
- b. Gallons
- c. Tablespoons
- d. Liters

5. Length of lawn

- a. Centimeters
- b. Kilometers
- c. Yards
- d. Inches

Answer Sheet

Math
Time

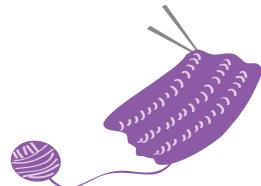
Hours, Days, and Weeks

Answer the questions by converting the units of time.

Remember, 1 day equals 24 hours and 1 week equals 7 days.

Grandma knitted a scarf for me in 2 weeks. How many days did it take her?

$$(2 \text{ weeks}) \times (7 \text{ days}) = 14 \text{ days}$$



Mr. Waterstone wrote a letter to Ms. Jacobs. It took 4 weeks to arrive.
How many days did it take?

$$(4 \text{ weeks}) \times (7 \text{ days}) = 28 \text{ days}$$



Tom rode a hot air balloon across the ocean. He was on the balloon for 3 days.
How many hours was he on the balloon?

$$(3 \text{ days}) \times (24 \text{ hours}) = 72 \text{ hours}$$



It took Mr. Carpenter a week and one day to fix the fence. How many hours did he spend fixing the fence?

$$(1 \text{ week}) + (1 \text{ day}) = 8 \text{ days}$$

$$(8 \text{ days}) \times (24 \text{ hours}) = 192 \text{ hours}$$



Meg read a book in 3 weeks, 2 days, and 3 hours. How many hours did she spend reading the book?

$$(3 \text{ weeks}) + (2 \text{ days}) = 23 \text{ days}$$

$$(23 \text{ days}) \times (24 \text{ hours}) = 552 \text{ hours}$$

$$(552 \text{ hours}) + (3 \text{ hours}) = 555 \text{ hours}$$



Answer Sheet

Math
Time

The Right Time Answer Sheet

Answer the questions by converting the units of time.
Remember, 1 hour equals 60 minutes and 1 minute equals 60 seconds.

Pete and Sam practice singing 2 hours everyday. How many minutes do they practice each day?



$$2 \text{ hours} \times 60 \text{ minutes} = 120 \text{ minutes}$$

Jenny plays her trumpet for 1 hour and 45 minutes every evening. How many minutes does she practice each night?



$$60 + 45 = 105 \text{ minutes}$$

Lynn gives a piano lesson after school everyday. Today she taught for 95 minutes. How many hours did she teach today?

$$\frac{95}{60} = 1 \text{ hour } 35 \text{ minutes}$$



Amy played flute during her recital. The song lasted for 303 seconds. How many minutes did she play?

$$\frac{303}{60} = 5 \text{ minutes } 3 \text{ seconds}$$



Denny danced to all the songs on his mp3 player. His mp3 player has 200 minutes and 180 seconds of music. How many hours did he dance?

$$\frac{180}{60} = 3 \text{ minutes}$$

$$\frac{200}{60} = 3 \text{ hours } 20 \text{ minutes}$$

$$3 \text{ hours } 23 \text{ minutes}$$



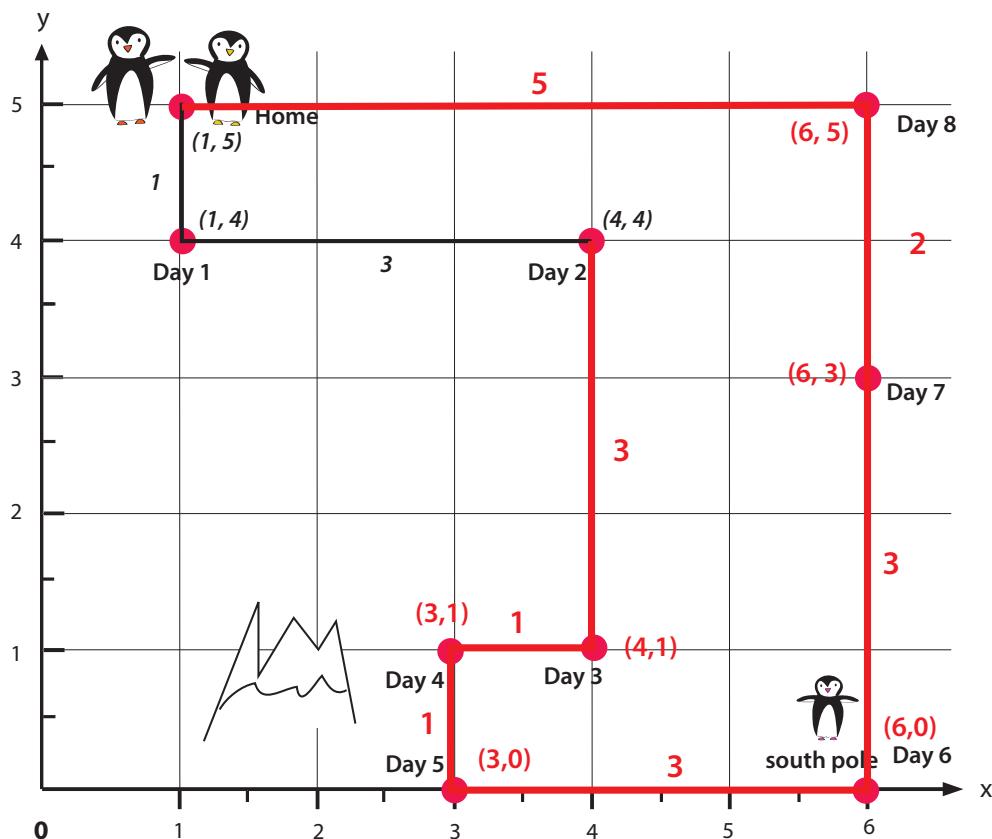
Answer Sheet

Answer Sheet

Traveling to the South Pole: Practice Coordinates and Perimeter

The penguin parents are traveling to the South Pole to pick up their baby, stopping at each point on the grid along the way. Then together, the three of them will go back home in a different route. See how far their route is by finding the distance between the coordinates (see examples below).

Review: The first number refers to X coordinate. The second number refers to Y coordinate.



Example:

Day 1: Distance between home (1, 5) to Day 1 stop (1, 4). Subtract difference of Y-value of each location. Y value of home = 5, Y value of Day 1 stop = 4.

Therefore, the distance is $5 - 4 = 1$. Then draw a line from each point and write 1.

Day 2: Distance between Day 1 stop (1, 4) to Day 2 stop (4, 4). Subtract difference of X-value of each location. X value of Day 2 stop = 4, X value of Day 1 stop = 1.

Therefore, the distance is $4 - 1 = 3$. Then draw a line from each point and write 3.

Day 3: (4, 1)

$$4 - 1 = 3$$

Day 4: (3, 1)

$$4 - 3 = 1$$

Day 5: (3, 0)

$$1 - 0 = 1$$

Day 6: (6, 0)

$$6 - 3 = 3$$

Day 7: (6, 3)

$$3 - 0 = 3$$

Day 8: (6, 5)

$$5 - 3 = 2$$

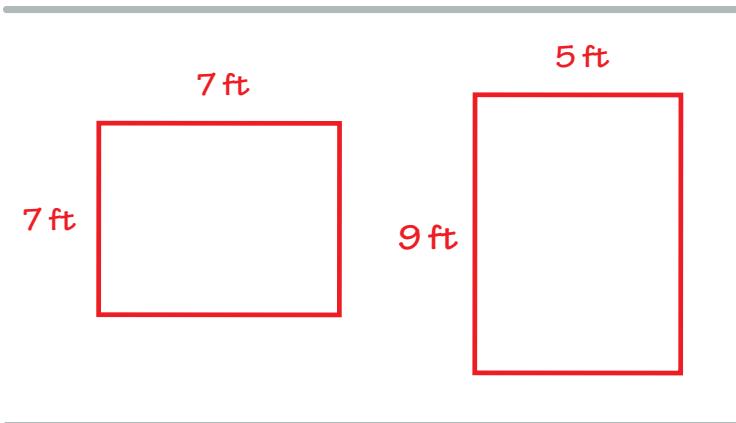
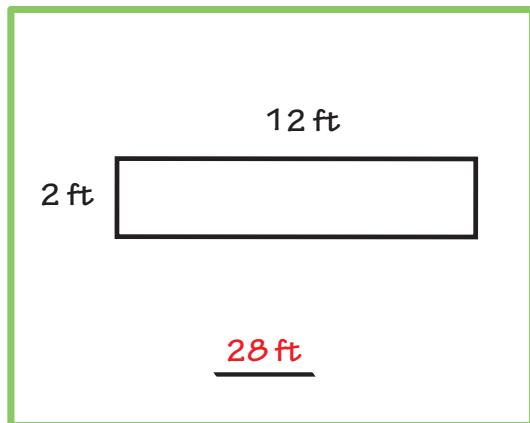
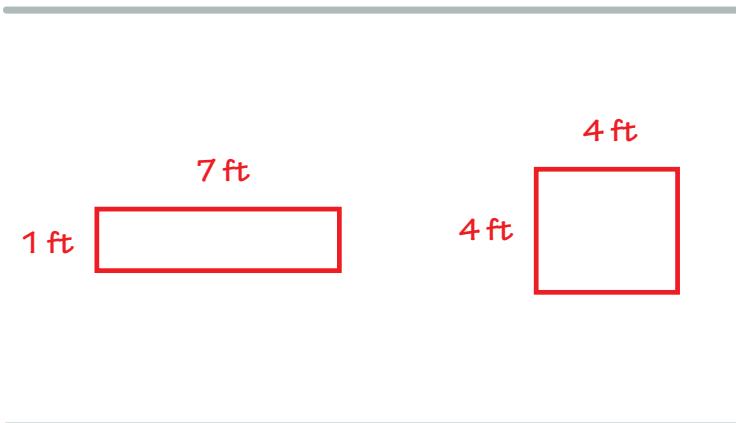
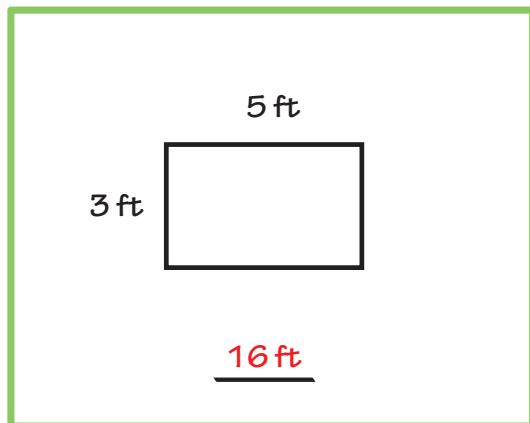
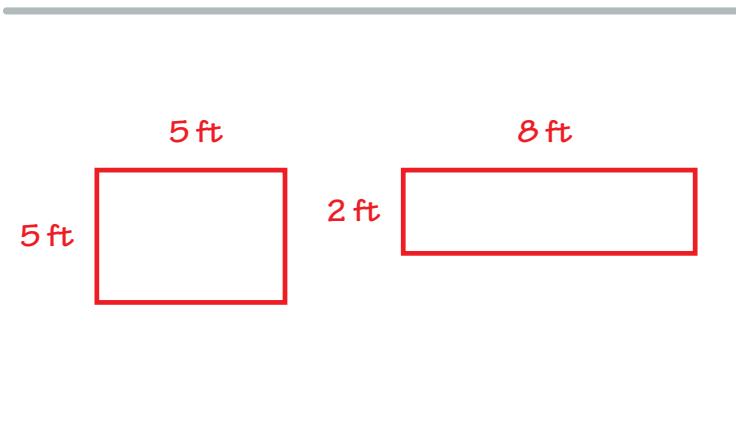
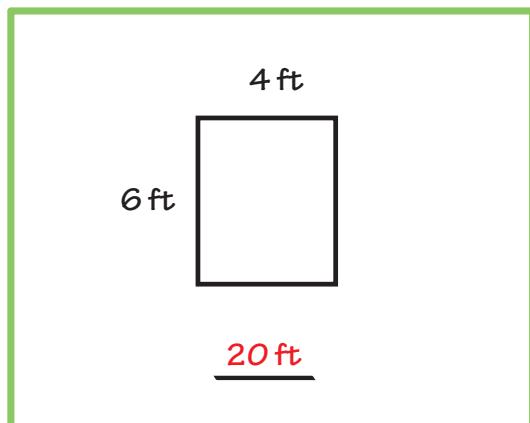
Day 8 to Home:

$$6 - 1 = 5$$

Answer Sheet

PERIMETER MATCH

Find the **perimeter** of each rectangle, then draw at least 2 rectangles that have the same perimeter.



Answer Sheet



Geometry Detective: Triangle Answer Sheet

#2

Find area of each triangle using clues from the lengths provided. Show your work.

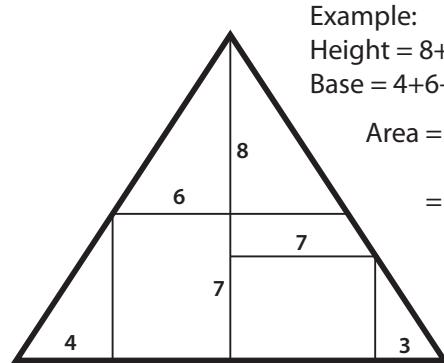
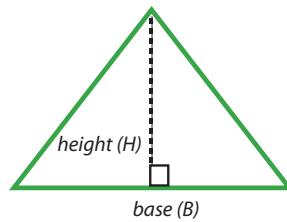
Review:

$$\text{Triangle Area} = \frac{1}{2} \times \text{base} \times \text{height}$$

The height of a triangle is the distance from the base to its opposite vertex, or angle.

The base of a triangle can be any of its sides.

The height line and base must be perpendicular to each other.

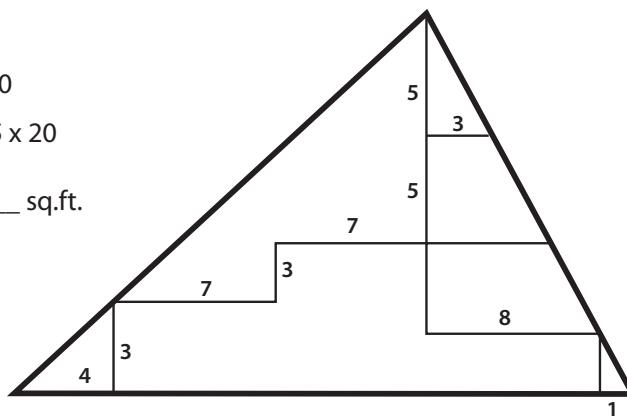


Example:

$$\text{Height} = 8 + 7 = 15$$

$$\text{Base} = 4 + 6 + 7 + 3 = 20$$

$$\begin{aligned} \text{Area} &= \frac{1}{2} \times 15 \times 20 \\ &= \underline{\underline{150}} \text{ sq.ft.} \end{aligned}$$



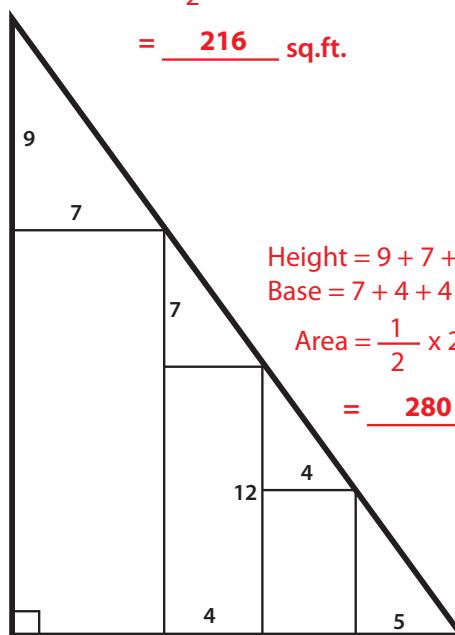
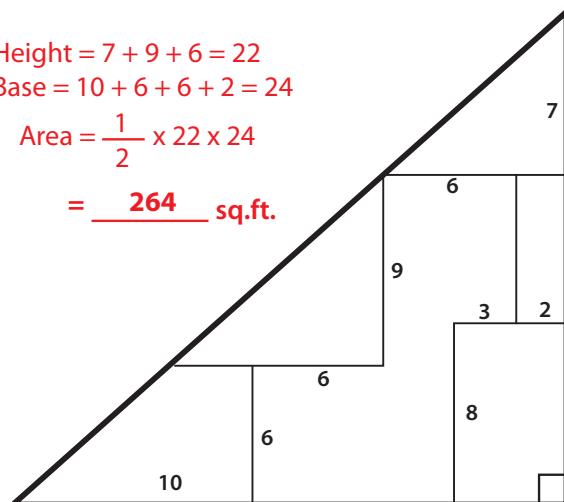
$$\text{Height} = 5 + 5 + 3 + 3 = 16$$

$$\text{Base} = 4 + 7 + 7 + 8 + 1 = 27$$

$$\begin{aligned} \text{Area} &= \frac{1}{2} \times 16 \times 27 \\ &= \underline{\underline{216}} \text{ sq.ft.} \end{aligned}$$

$$\begin{aligned} \text{Height} &= 7 + 9 + 6 = 22 \\ \text{Base} &= 10 + 6 + 6 + 2 = 24 \end{aligned}$$

$$\begin{aligned} \text{Area} &= \frac{1}{2} \times 22 \times 24 \\ &= \underline{\underline{264}} \text{ sq.ft.} \end{aligned}$$



Answer Sheet



Answer Sheet Obtuse Triangle: Practice Finding Area

Use the clues provided to find the area of each triangle. Show your work.

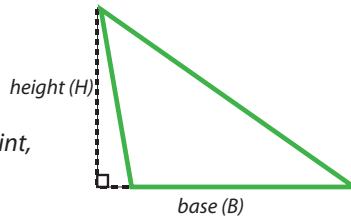
Review:

$$\text{Triangle Area} = \frac{1}{2} \times \text{base} \times \text{height}$$

The base of a triangle can be any one of its sides.

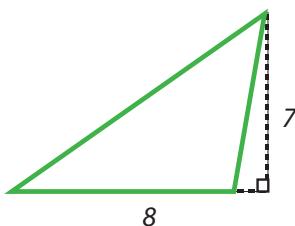
The height is the distance from a base to its opposite point, or vertex.

A base must be perpendicular to its height.



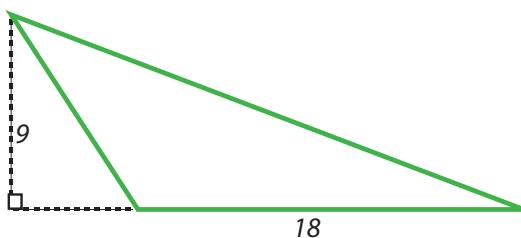
An obtuse triangle is a triangle that has one obtuse angle (an angle that is greater than 90 degrees).

Example:



$$\text{Base} = \underline{\underline{8}} \text{ ft.}$$
$$\text{Height} = \underline{\underline{7}} \text{ ft.}$$

$$\text{Area} = \frac{1}{2} \times 8 \times 7$$
$$= \underline{\underline{28}} \text{ ft.}$$

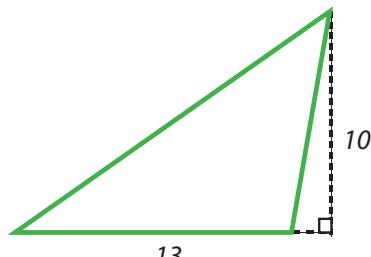
1

$$\text{Base} = \underline{\underline{18}} \text{ ft.}$$

$$\text{Height} = \underline{\underline{9}} \text{ ft.}$$

$$\text{Area} = \frac{1}{2} \times 18 \times 9$$

$$= \underline{\underline{81}} \text{ sq.ft.}$$

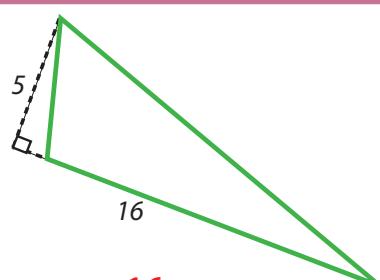
2

$$\text{Base} = \underline{\underline{13}} \text{ ft.}$$

$$\text{Height} = \underline{\underline{10}} \text{ ft.}$$

$$\text{Area} = \frac{1}{2} \times 13 \times 10$$

$$= \underline{\underline{65}} \text{ sq.ft.}$$

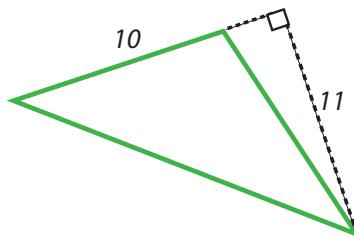
3

$$\text{Base} = \underline{\underline{16}} \text{ ft.}$$

$$\text{Height} = \underline{\underline{5}} \text{ ft.}$$

$$\text{Area} = \frac{1}{2} \times 16 \times 5$$

$$= \underline{\underline{40}} \text{ sq.ft.}$$

4

$$\text{Base} = \underline{\underline{10}} \text{ ft.}$$

$$\text{Height} = \underline{\underline{11}} \text{ ft.}$$

$$\text{Area} = \frac{1}{2} \times 10 \times 11$$

$$= \underline{\underline{55}} \text{ sq.ft.}$$



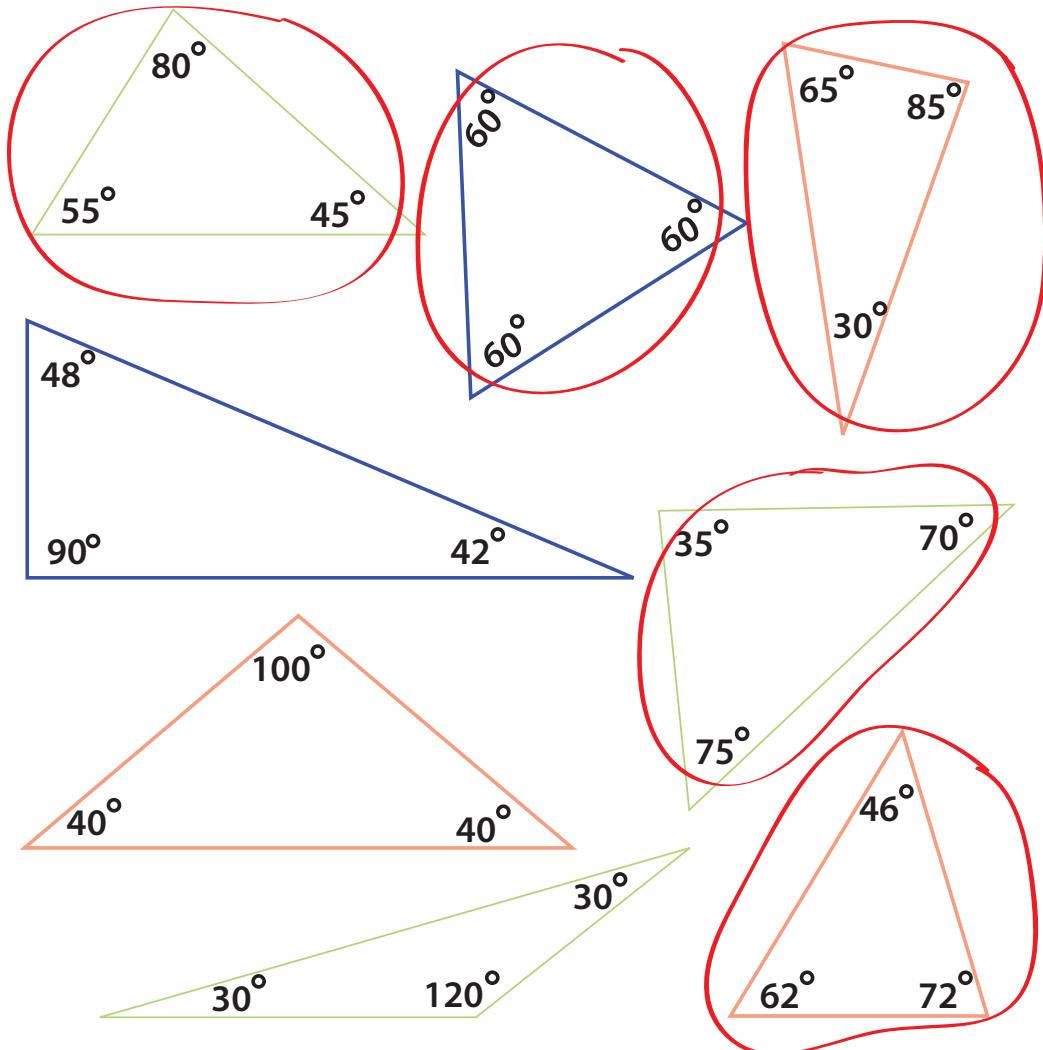
Answer Sheet

Math
Geometry

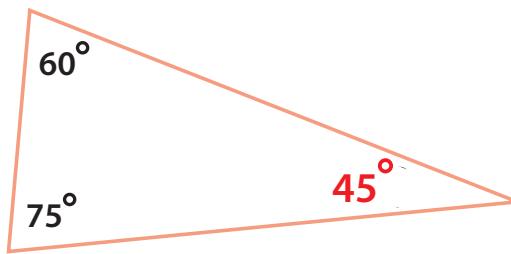
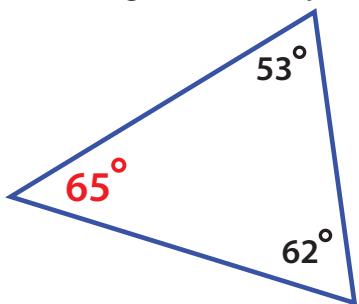
Answer Sheet

Identifying Triangles: Acute Triangles

An acute triangle is a triangle that has three acute angles (angles that each measure less than 90 degrees). Circle the acute triangles below.



Find the value of the missing angles in these acute triangles. Remember, the three angles in a triangle must add up to 180 degrees.



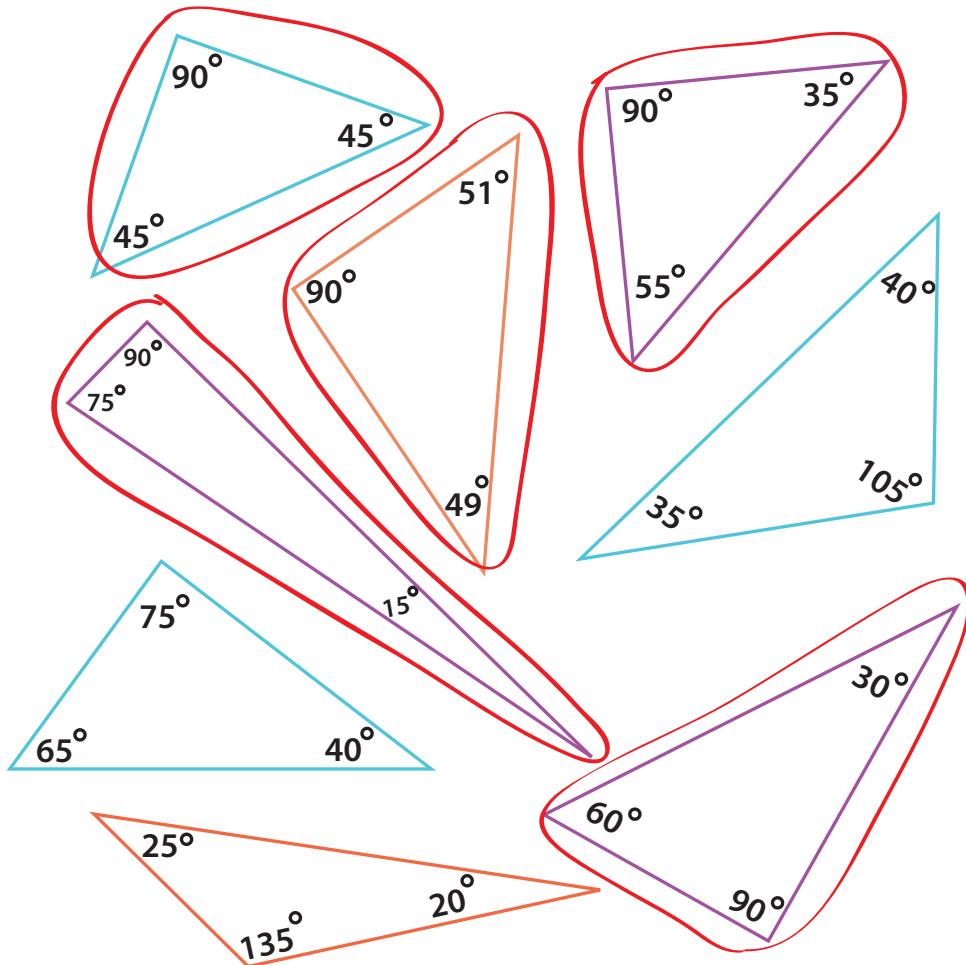
Answer Sheet

Math
Geometry

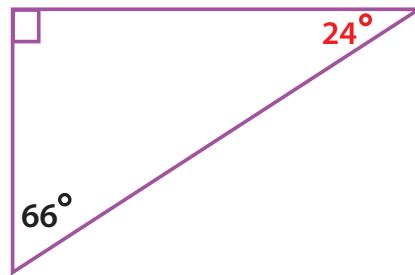
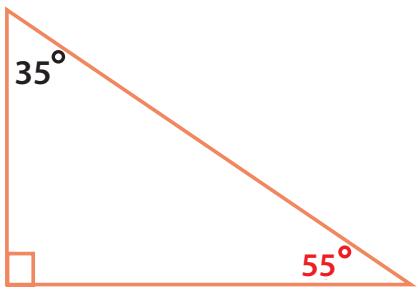
Answer Sheet

Identifying Triangles: Right Triangles

A right triangle is a triangle that has one right angle (90 degree angle). Circle the triangles that is a right triangle.



Find the value of the missing angles in these right triangles. Remember, three angles in every triangle always add up to 180 degree.

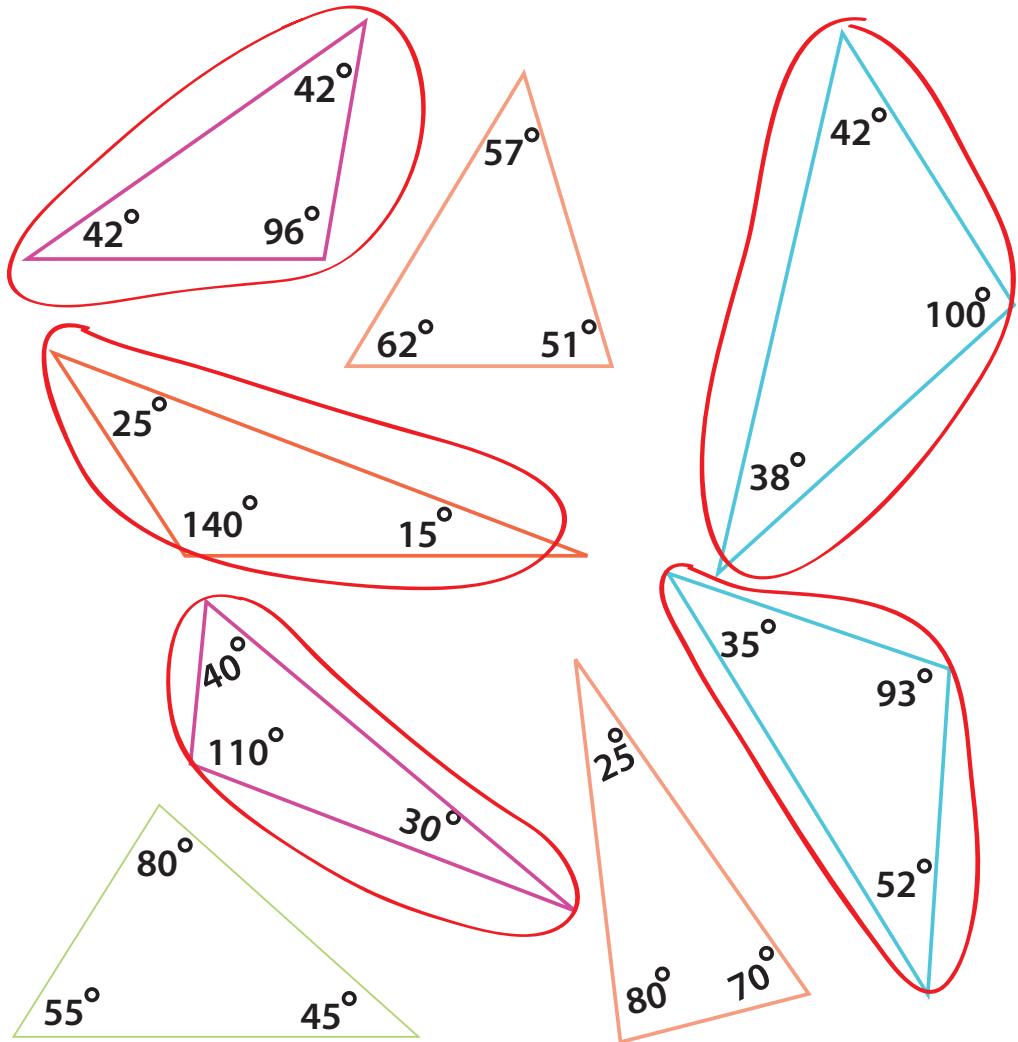


Answer Sheet

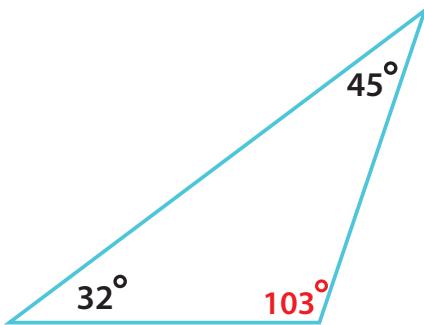
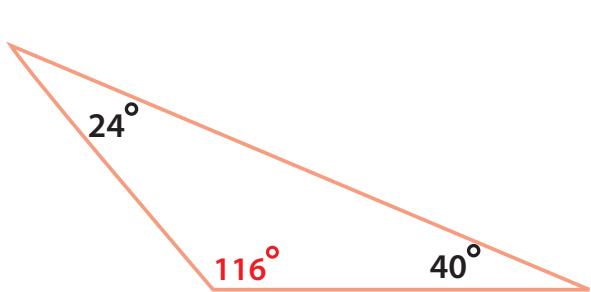
Math
Geometry

Answer Sheet Identifying Triangles: Obtuse Triangles

An obtuse triangle is a triangle that has one obtuse angle (an angle that measures more than 90 degrees). Circle the obtuse triangles below.



Find the value of the missing angles in these obtuse triangles. Remember, the three angles in a triangle must add up to 180 degrees.



Answer Sheet

4th Grade

Geometry Detective: Triangle Answer Sheet

#3

Find the area of each triangle using clues from the lengths provided. Show your work.

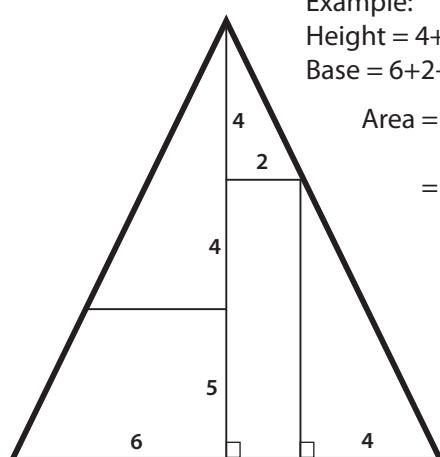
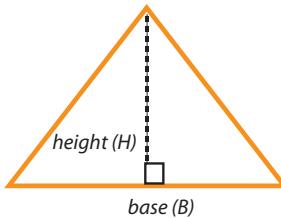
Review:

$$\text{Triangle Area} = \frac{1}{2} \times \text{base} \times \text{height}$$

The base of a triangle can be any one of its sides.

The height is the distance from a base to its opposite point, or vertex.

A base must be perpendicular to its height.

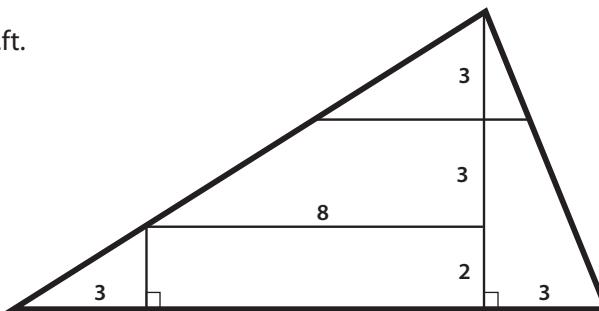


Example:

$$\text{Height} = 4 + 4 + 5 = 13$$

$$\text{Base} = 6 + 2 + 4 = 12$$

$$\begin{aligned} \text{Area} &= \frac{1}{2} \times 13 \times 12 \\ &= \underline{\underline{78}} \text{ sq.ft.} \end{aligned}$$



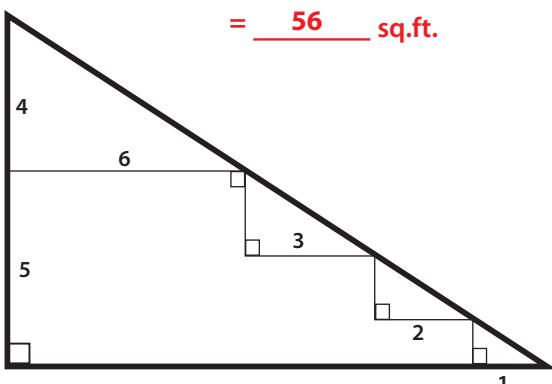
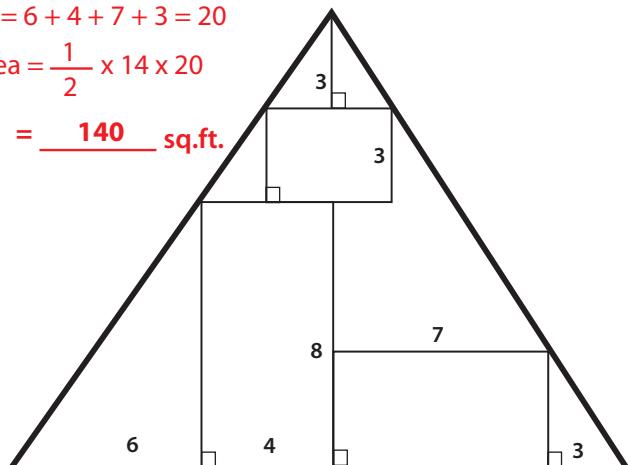
$$\text{Height} = 2 + 3 + 3 = 8$$

$$\text{Base} = 3 + 8 + 3 = 14$$

$$\begin{aligned} \text{Area} &= \frac{1}{2} \times 8 \times 14 \\ &= \underline{\underline{56}} \text{ sq.ft.} \end{aligned}$$

$$\begin{aligned} \text{Height} &= 8 + 3 + 3 = 14 \\ \text{Base} &= 6 + 4 + 7 + 3 = 20 \end{aligned}$$

$$\begin{aligned} \text{Area} &= \frac{1}{2} \times 14 \times 20 \\ &= \underline{\underline{140}} \text{ sq.ft.} \end{aligned}$$



$$\text{Height} = 4 + 5 = 9$$

$$\text{Base} = 6 + 3 + 2 + 1 = 12$$

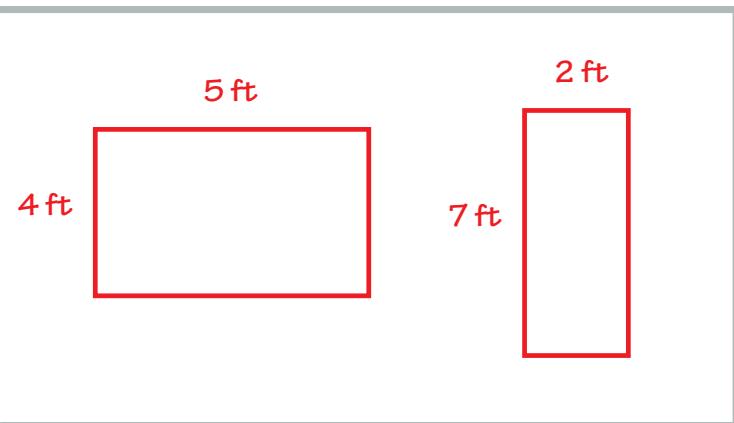
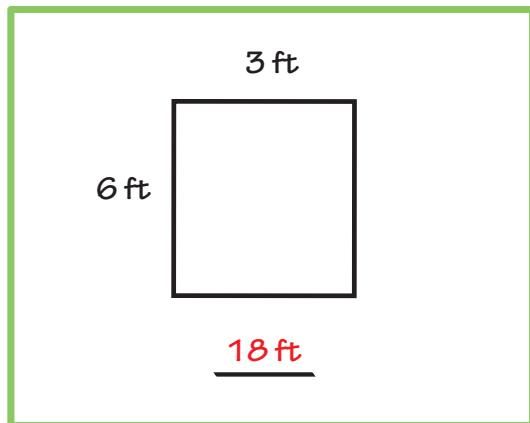
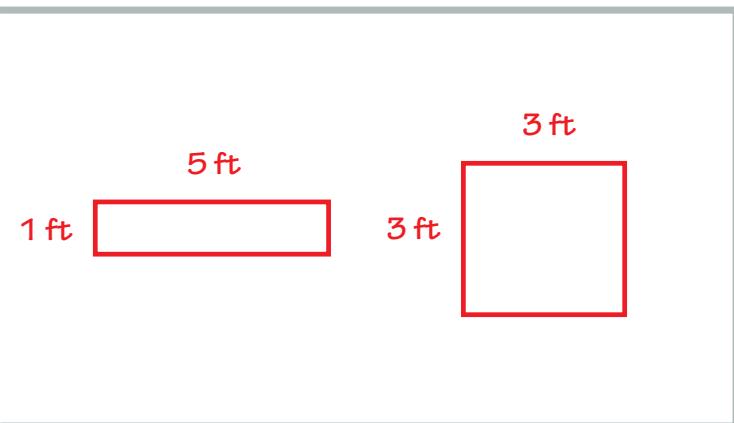
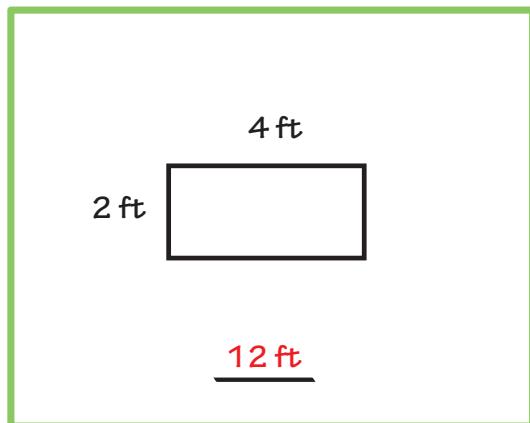
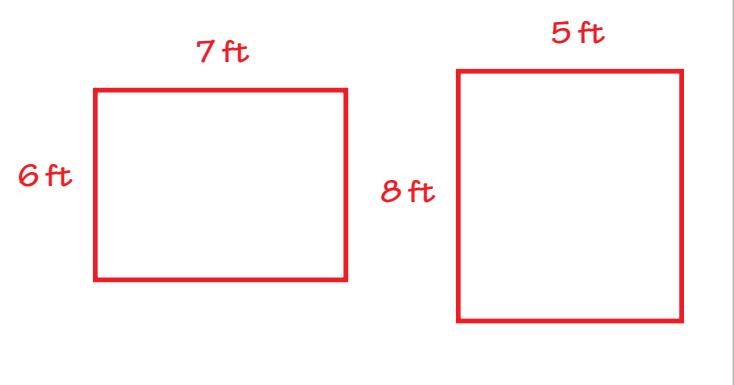
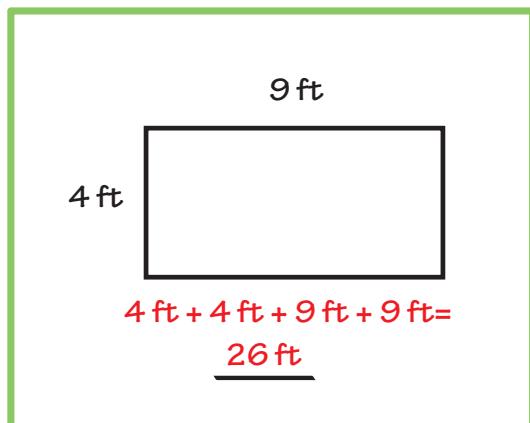
$$\begin{aligned} \text{Area} &= \frac{1}{2} \times 9 \times 12 \\ &= \underline{\underline{54}} \text{ sq.ft.} \end{aligned}$$



Answer Sheet

PERIMETER MATCH

Find the **perimeter** of each rectangle, then draw at least 2 rectangles that have the same perimeter.



Answer Sheet



Answer Sheet Right Triangle: Practice Finding Area

Use the clues provided to find the area of each triangle. Show your work.

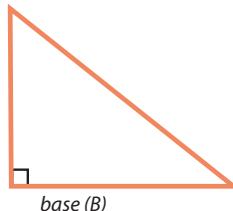
Review:

$$\text{Triangle Area} = \frac{1}{2} \times \text{base} \times \text{height}$$

The base of a triangle can be any one of its sides.

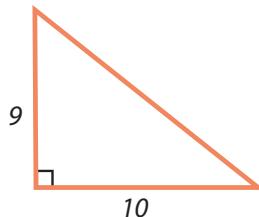
The height is the distance from a base to its opposite point, or vertex.

A base must be perpendicular to its height.



A right triangle is a triangle that has one right angle (90 degree angle). So the height is the side of a triangle.

Example:

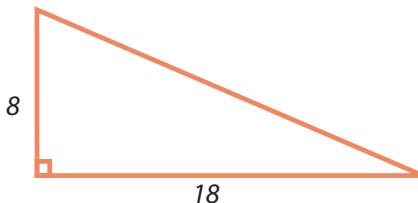


$$\text{Base} = \underline{\quad 10 \quad} \text{ ft.}$$

$$\text{Height} = \underline{\quad 9 \quad} \text{ ft.}$$

$$\begin{aligned}\text{Area} &= \frac{1}{2} \times 10 \times 9 \\ &= \underline{\quad 45 \quad} \text{ sq.ft.}\end{aligned}$$

1

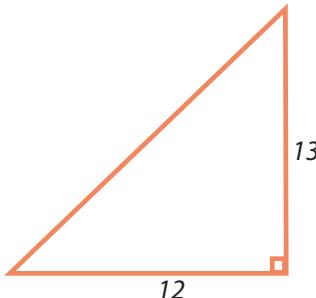


$$\text{Base} = \underline{\quad 18 \quad} \text{ ft.}$$

$$\text{Height} = \underline{\quad 8 \quad} \text{ ft.}$$

$$\begin{aligned}\text{Area} &= \frac{1}{2} \times 18 \times 8 = 72 \\ &= \underline{\quad 72 \quad} \text{ sq.ft.}\end{aligned}$$

2

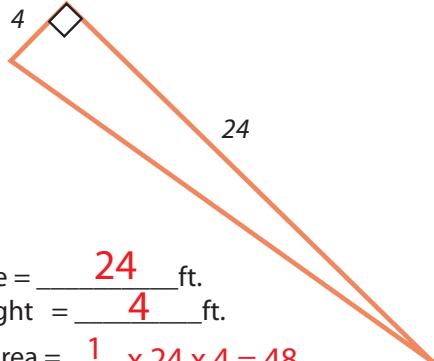


$$\text{Base} = \underline{\quad 12 \quad} \text{ ft.}$$

$$\text{Height} = \underline{\quad 13 \quad} \text{ ft.}$$

$$\begin{aligned}\text{Area} &= \frac{1}{2} \times 12 \times 13 = 78 \\ &= \underline{\quad 78 \quad} \text{ sq.ft.}\end{aligned}$$

3

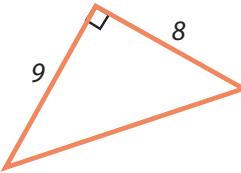


$$\text{Base} = \underline{\quad 24 \quad} \text{ ft.}$$

$$\text{Height} = \underline{\quad 4 \quad} \text{ ft.}$$

$$\begin{aligned}\text{Area} &= \frac{1}{2} \times 24 \times 4 = 48 \\ &= \underline{\quad 48 \quad} \text{ sq.ft.}\end{aligned}$$

4



$$\text{Base} = \underline{\quad 8 \quad} \text{ ft.}$$

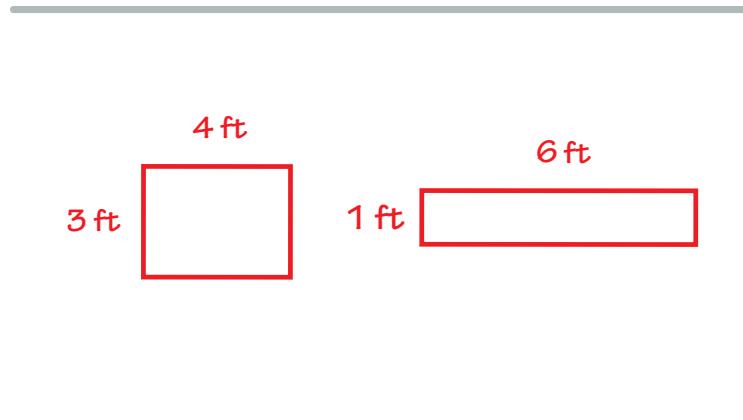
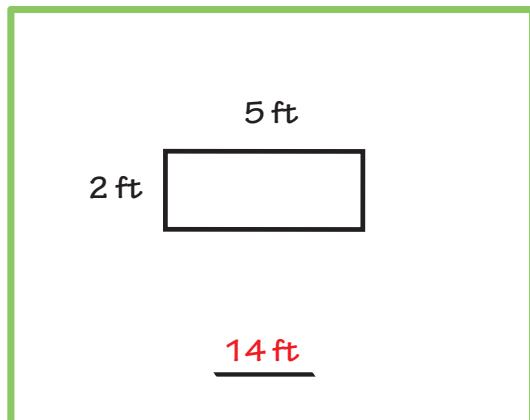
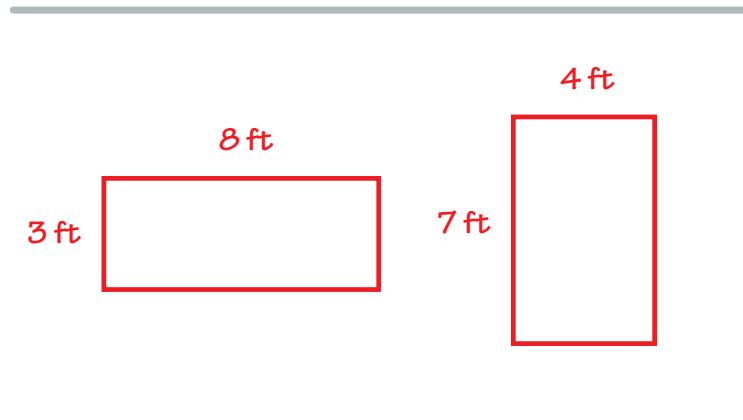
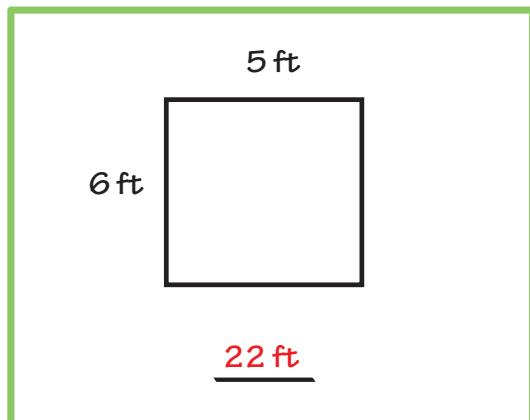
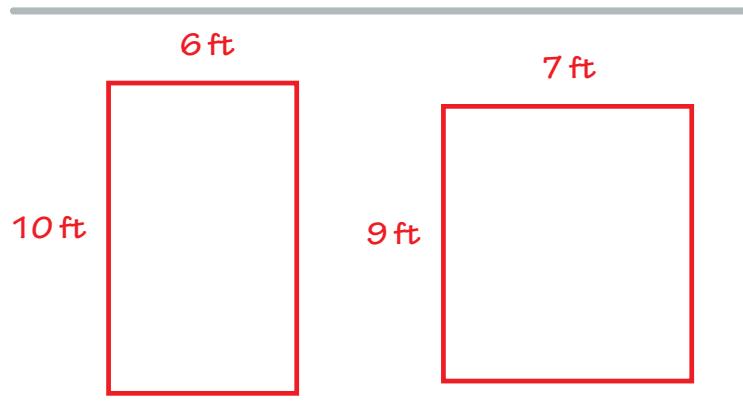
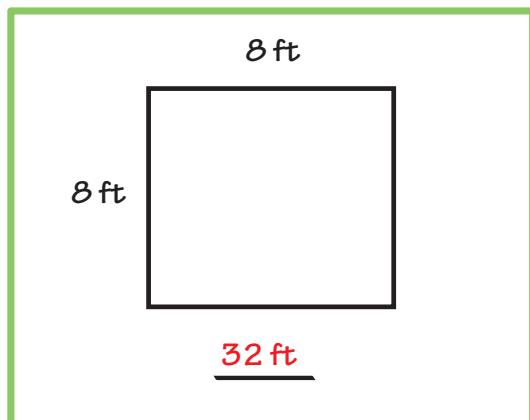
$$\text{Height} = \underline{\quad 9 \quad} \text{ ft.}$$

$$\begin{aligned}\text{Area} &= \frac{1}{2} \times 8 \times 9 = 36 \\ &= \underline{\quad 36 \quad} \text{ sq.ft.}\end{aligned}$$

Answer Sheet

PERIMETER MATCH

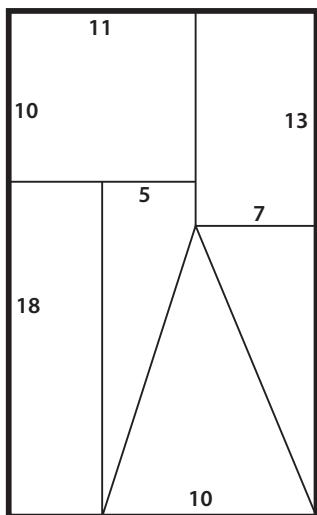
Find the **perimeter** of each rectangle, then draw at least 2 rectangles that have the same perimeter.



Answer Sheet

Finding Area: Medium Answer sheet

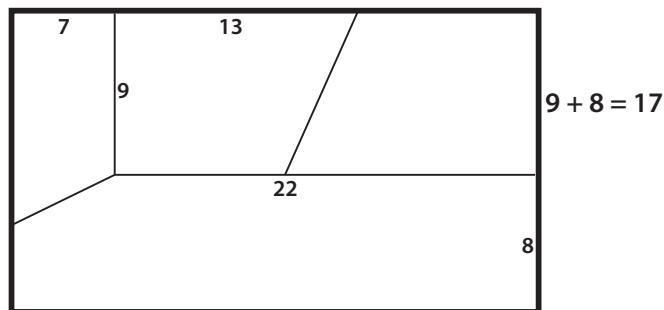
$$11 + 7 = 18$$



$$\text{Area} = 18 \times 28 = 504 \text{ sq.ft.}$$

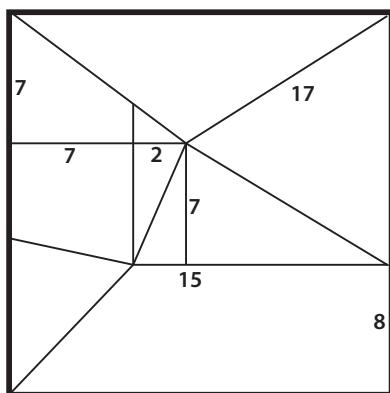
$$10 + 18 = 28$$

$$7 + 22 = 29$$



$$9 + 8 = 17$$

$$7 + 15 = 22$$



$$\text{Area} = 22 \times 22 = 484 \text{ sq.ft.}$$

$$7 + 7 + 8 = 22$$

Answer Sheet

Pentagon: Calculating Area

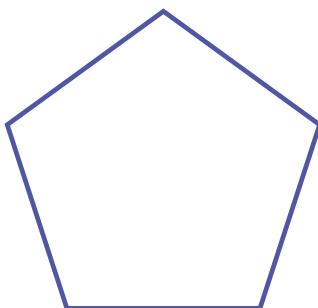


Answer Sheet

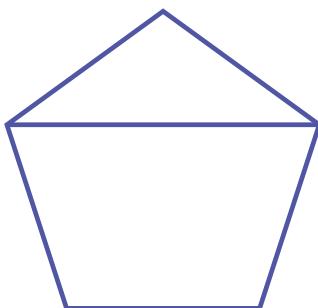
Various answers can apply.
Here are a few examples.

A pentagon contains many shapes that you probably already know. Use a ruler to divide the pentagon into regular shapes that you are familiar with. Then, name the shapes you created. This will help you practice finding the area of irregular shapes.

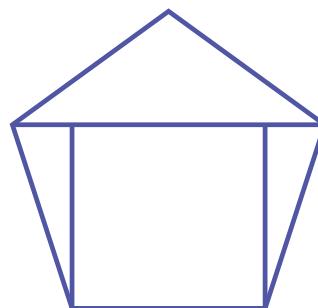
Example:



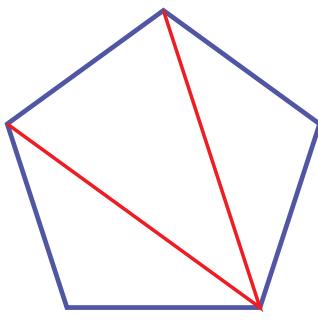
One pentagon



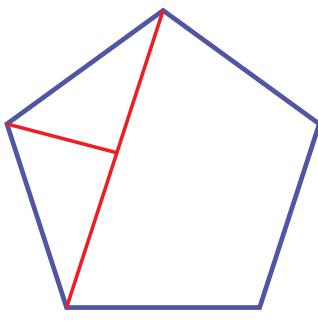
One triangle
One trapezoid



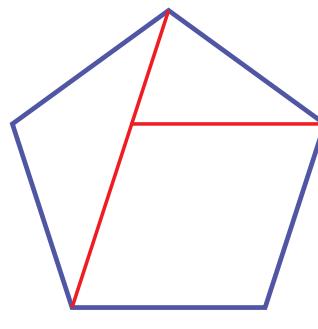
Three triangles
One rectangle



Three triangles

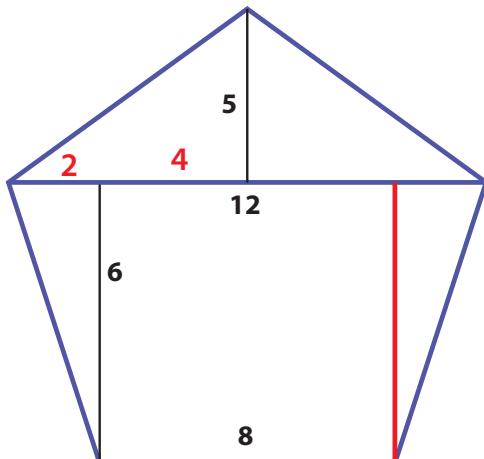


Two triangles



One trapezoid

Two triangles



Challenge!

Calculate the area of this pentagon using the heights and lengths of the geometric shapes.

$$\text{triangle area} = \frac{1}{2} \text{ base} \times \text{height}$$

$$\frac{1}{2} 2 \times 6 = 6$$

$$6 \times 2 \text{ triangles} = 12$$

$$\text{rectangle area} = \text{length} \times \text{width}$$

$$8 \times 6 = 48$$

$$48 \times 1 \text{ rectangle} = 48$$

$$\frac{1}{2} 6 \times 5 = 15$$

$$15 \times 2 \text{ triangles} = 30$$

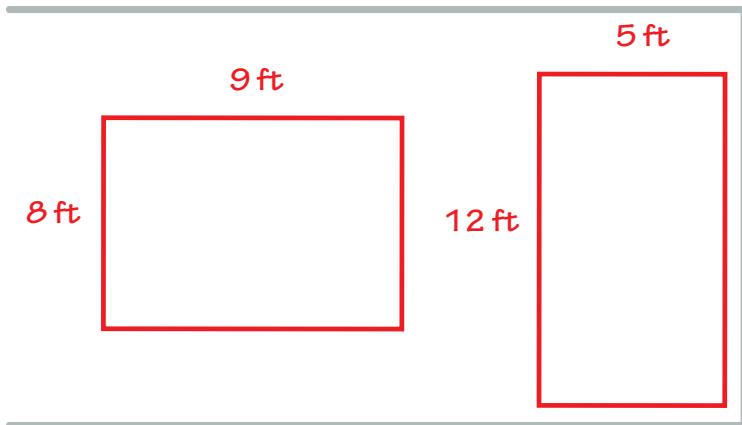
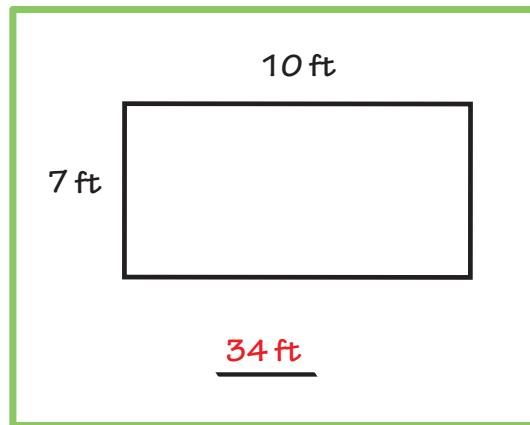
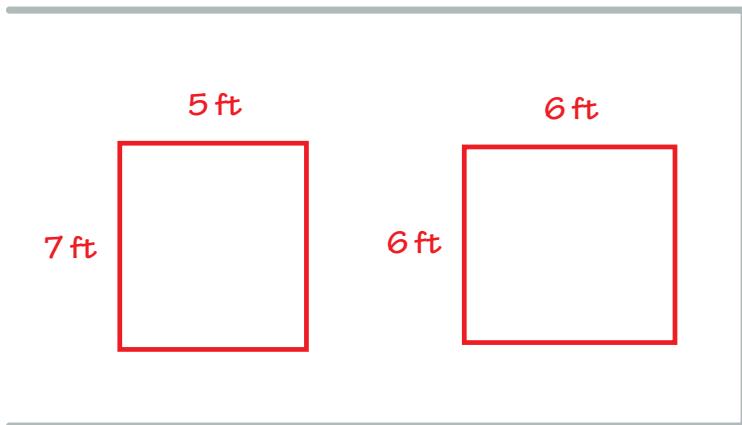
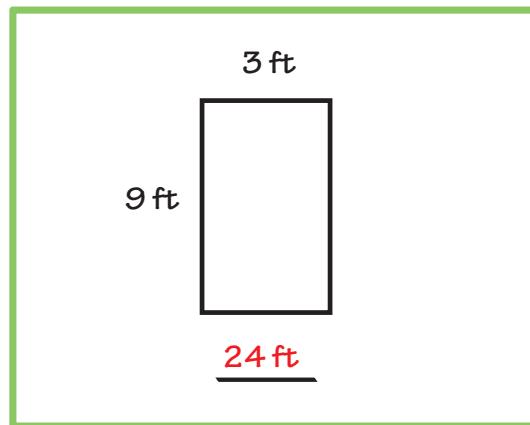
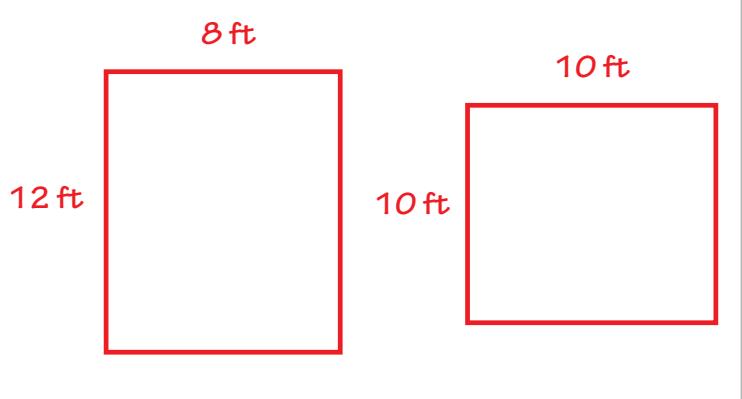
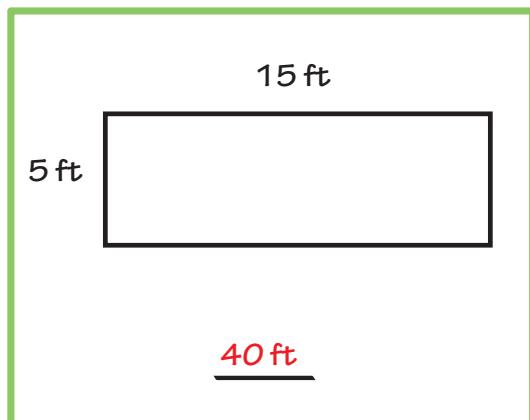
$$12 + 30 + 48 =$$

$$\boxed{90}$$

Answer Sheet

PERIMETER MATCH

Find the **perimeter** of each rectangle, then draw at least 2 rectangles that have the same perimeter.



Answer Sheet

4th Grade

Find a New Home

Answer Sheet

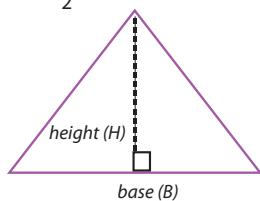


Help Mr. Rabbit find his new home. The total area of his place has to be at least **60** square feet. This includes the area of a roof (triangle) plus the area of the house (rectangle).

Review:

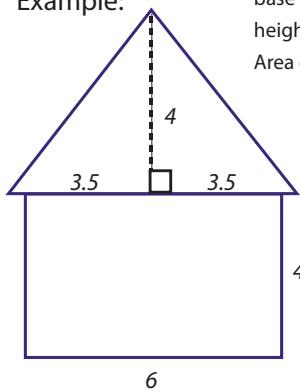
Rectangle Area = length x width

Triangle Area = $\frac{1}{2} \times \text{base} \times \text{height}$



The base of a triangle can be any one of its sides.
The height is the distance from a base to its opposite point, or vertex.
A base must be perpendicular to its height.

Example:



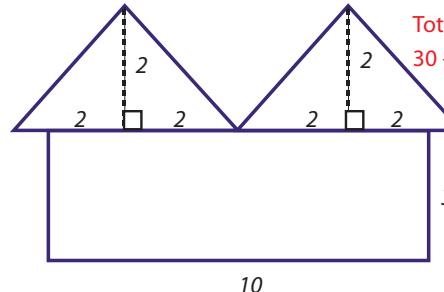
$$\begin{aligned}\text{base} &= 3.5 + 3.5 = 7 \\ \text{height} &= 4 \\ \text{Area of the roof} &= \frac{1}{2} \times \text{base} \times \text{height} \\ &= \frac{1}{2} \times 7 \times 4 = 14 \\ \text{Area of the rectangle} &= 6 \times 4 = 24 \\ \text{Total area} &= 14 + 24 = 38 \text{ square feet.}\end{aligned}$$

base = 4
height = 2

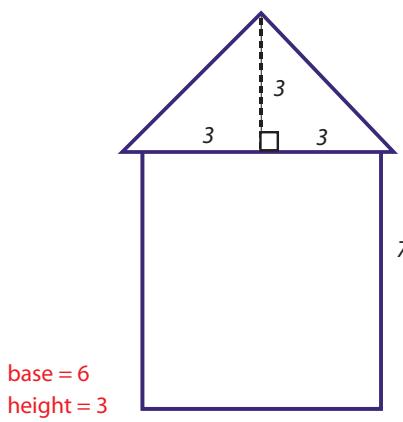
Area of the roof = $\frac{1}{2} \times 4 \times 2 = 4$ $4 \times 2 = 8$

Area of the rectangle = $10 \times 3 = 30$

Total Area =
 $30 + 8 = 38$
square feet



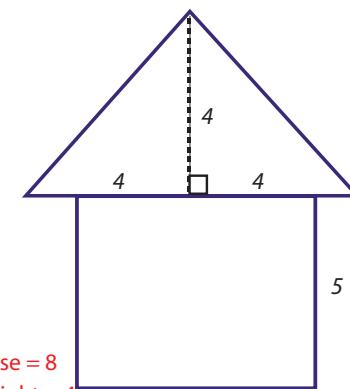
10



$$\begin{aligned}\text{base} &= 6 \\ \text{height} &= 3 \\ \text{Area of the roof} &= \frac{1}{2} \times 6 \times 3 = 9\end{aligned}$$

Area of the rectangle = $7 \times 5 = 35$

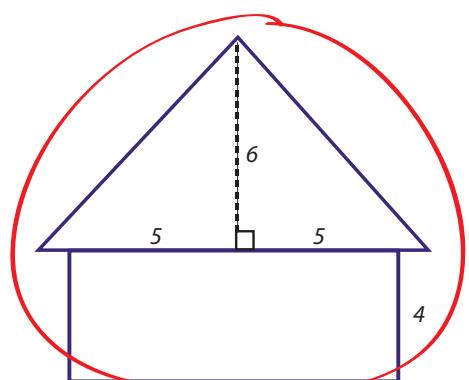
Total Area = $9 + 35 = 44$ square feet



$$\begin{aligned}\text{base} &= 8 \\ \text{height} &= 4 \\ \text{Area of the roof} &= \frac{1}{2} \times 8 \times 4 = 16\end{aligned}$$

Area of the rectangle = $5 \times 5 = 25$

Total Area = $16 + 25 = 41$ square feet



$$\begin{aligned}\text{base} &= 10 \\ \text{height} &= 6\end{aligned}$$

Area of the roof = $\frac{1}{2} \times 10 \times 6 = 30$

Area of the rectangle = $4 \times 8 = 32$

Total Area = $30 + 32 = 62$ square feet

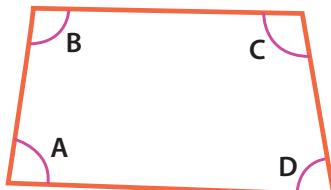


Answer Sheet

Math
Geometry

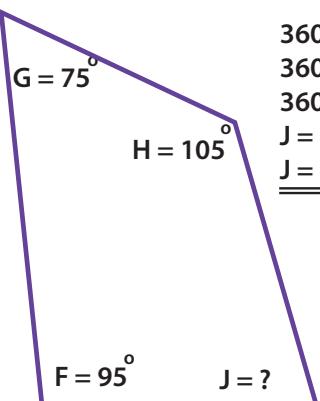
Answer Sheet The Missing Angle: Quadrilaterals

In every quadrilateral, all four angles add up to 360° .

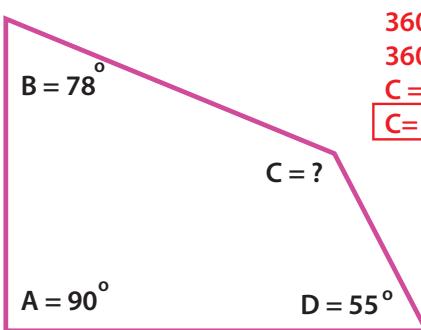


$$360 = A + B + C + D$$

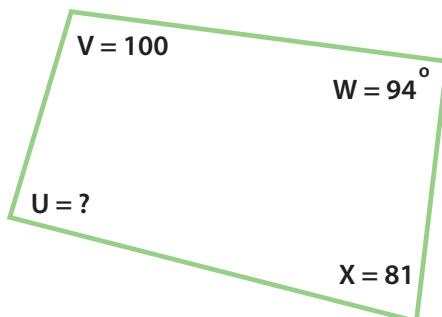
Use this rule to find the missing angle in the quadrilaterals. See the example.



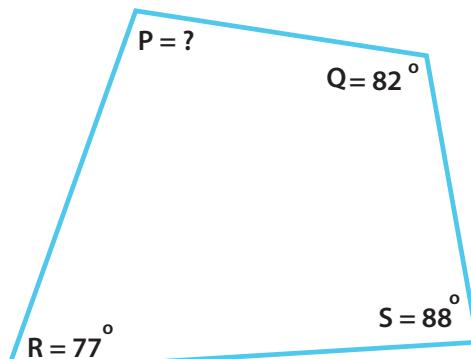
$$\begin{aligned}360^\circ &= F + G + H + J \\360^\circ &= 95^\circ + 75^\circ + 105^\circ + J \\360^\circ &= 275^\circ + J \\J &= 360^\circ - 275^\circ \\J &= 85^\circ\end{aligned}$$



$$\begin{aligned}360^\circ &= A + B + C + D \\360^\circ &= 90^\circ + 78^\circ + C + 55^\circ \\360^\circ &= 223^\circ + C \\C &= 360^\circ - 223^\circ \\C &= 137^\circ\end{aligned}$$



$$\begin{aligned}360^\circ &= U + V + W + X \\360^\circ &= U + 100^\circ + 94^\circ + 81^\circ \\360^\circ &= 275^\circ + U \\U &= 360^\circ - 275^\circ \\U &= 85^\circ\end{aligned}$$



$$\begin{aligned}360^\circ &= P + Q + R + S \\360^\circ &= P + 82^\circ + 77^\circ + 88^\circ \\360^\circ &= 247^\circ + P \\P &= 360^\circ - 247^\circ \\P &= 113^\circ\end{aligned}$$

Answer Sheet

M A T H
GEOMETRY

Answer Sheet

Parallel and Perpendicular lines

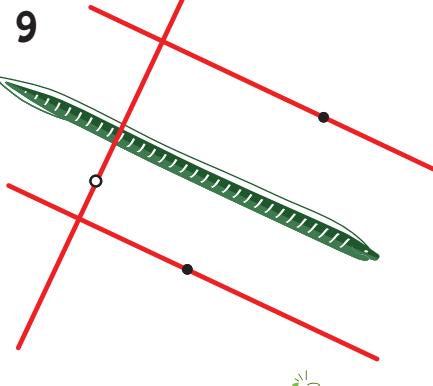
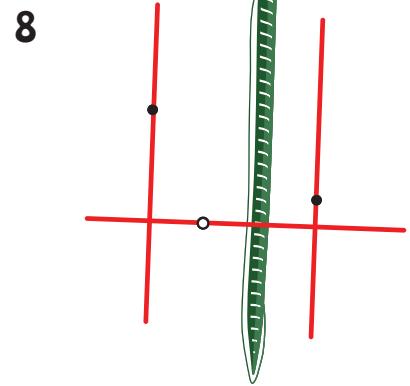
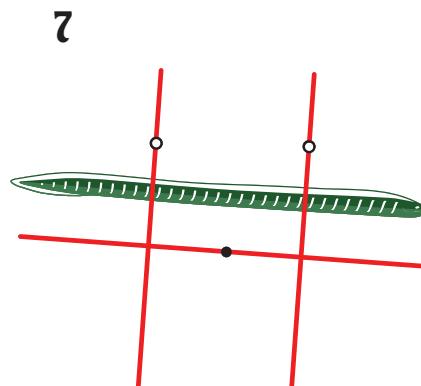
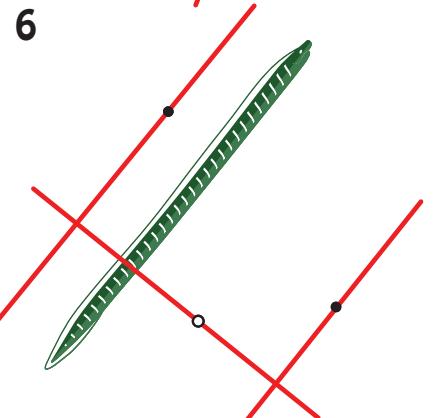
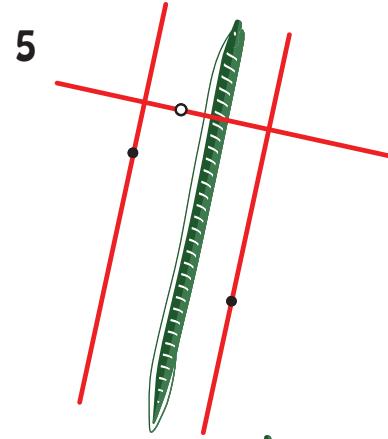
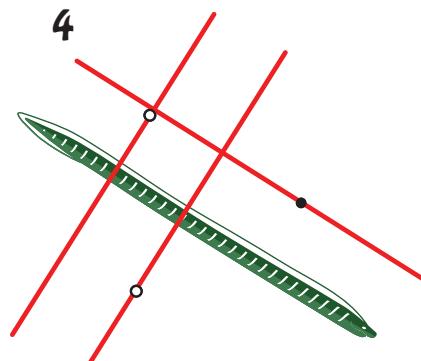
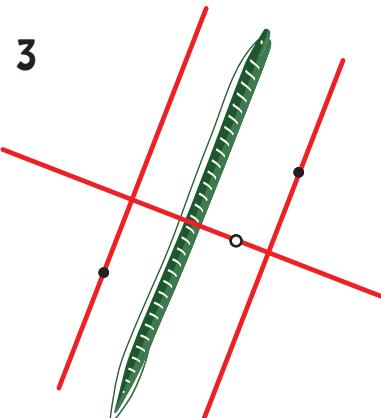
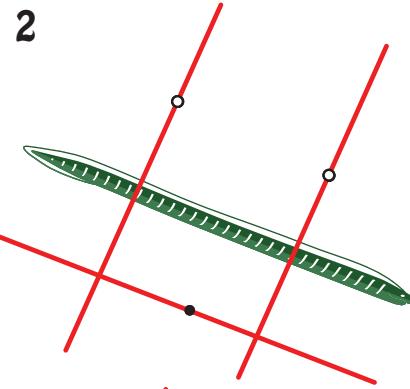
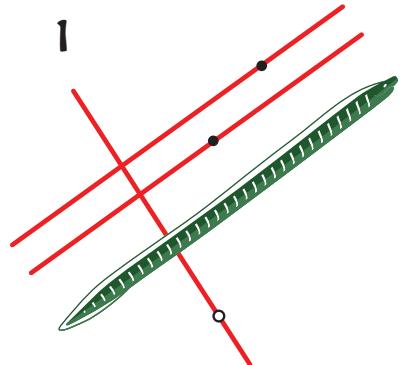
Elouisa the Eel

Elouisa the Eel needs help learning parallel and perpendicular lines. Draw parallel lines through the black dots and perpendicular lines through the white dots. Use a ruler to help you draw straight lines.



● Parallel

○ Perpendicular



Answer Sheet

Answer Sheet

M A T H
G E O M E T R Y

ANGLE STEERING



Steering a ship requires practice and precision. It also requires you to think about math and angles.

Turn the ship's wheel according to the angle measurements given. See the examples below. With each new turn, indicate the ship's new direction by drawing a line towards it. Turn clockwise if the angle is positive, counterclockwise if it is negative. Use a ruler to help you draw straight lines.



	1	2	3	4	5	6	7	8	9	10	11	12
Turn Degrees	+26°	+37°	-51°	+153°	-92°	-30°	-9°	+185°	-67°	+49°	+93°	-60°
New Direction	26°	63°	12°	165°	73°	43°	34°	219°	152°	201°	294°	234°

