Unit: Geometry
Student Handout 1

Name _____

Date _____ Pd_____

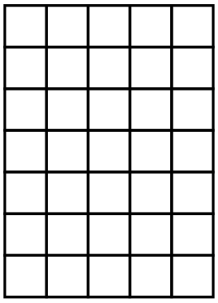
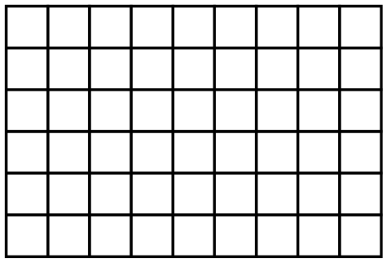
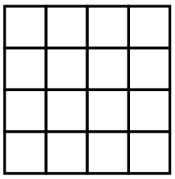
AREA OF RECTANGLES AND PARALLELOGRAMS

AREA OF RECTANGLES

- Area is the _____ _____ of a two-dimensional figure. We can think of it as the square units that a shape covers.
- Use the formula _____, where "b" is the length of the _____, and "h" is the height of the rectangle.
- Area is measured in _____ units:

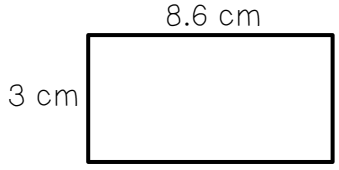
Ex: inches • inches = ____ feet • feet = ____ meters • meters = ____

Count the number of squares to find the dimensions and area of each rectangle. Then use the area formula to verify your answer.

RECTANGLE 1	RECTANGLE 2	RECTANGLE 3
		
Formula: _____	Formula: _____	Formula: _____
Plug in Values: _____	Plug in Values: _____	Plug in Values: _____
Area: _____	Area: _____	Area: _____

Determine the area of each rectangle below.

1.

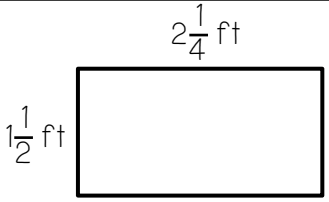


Formula: _____

Plug in Values: _____

Area: _____

2.



Formula: _____

Plug in Values: _____

Area: _____

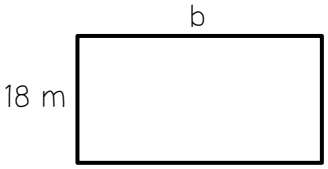
WRITING FORMULAS

- We can also solve for any missing piece of information in the formula by solving a _____ equation.

Ex: A = bh can be written as _____ .

Use your understanding of the area of rectangles to answer the questions below.

3. The area of the rectangle is 162 m^2.



Formula: _____

Plug in Values: _____

Value of b: _____

4. Circle all of the formulas below that could be used to find the height of a rectangle with a base of 11 in and an area of 120 in^2.

a. $120 = 11(11)$ b. $11 = 120(h)$

c. $120 = 11(h)$ d. $h = \frac{120}{11}$

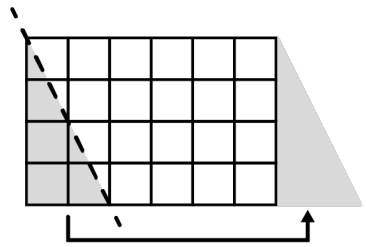
e. $h = \frac{11}{120}$

AREA OF PARALLELOGRAMS

- The dimensions of a parallelogram are also referred to as the base and height.
- Use the formula _____, where "b" is the length of the base and "h" is the height of the parallelogram, which makes a _____ with the base.

Count the number of squares to find the dimensions and area of parallelogram 1. Then use the area formula to find the area of parallelograms 2 and 3.

PARALLELOGRAM 1

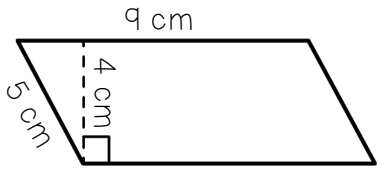


Formula: _____

Plug in Values: _____

Area: _____

PARALLELOGRAM 2

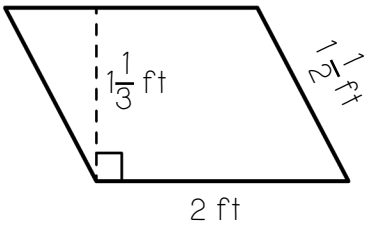


Formula: _____

Plug in Values: _____

Area: _____

PARALLELOGRAM 3



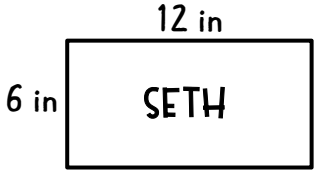
Formula: _____

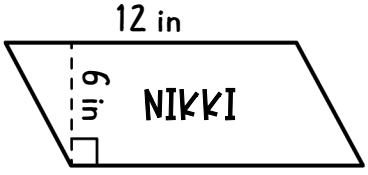
Plug in Values: _____

Area: _____

Use your knowledge of area to answer the question below.

5. Mrs. Lewis asked students to sketch a figure with a base of 12 inches and a height of 6 inches. Did the students complete the task correctly? Describe how the area of a rectangle and the area of a parallelogram with the same dimensions are related.





Summarize today's lesson:

Unit: Geometry
Homework 1

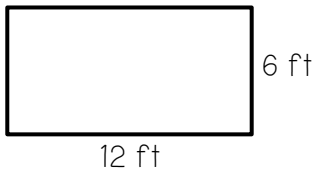
Name _____

Date _____ Pd_____

AREA OF RECTANGLES AND PARALLELOGRAMS

Solve the problems below. Be sure to show your work. Figures are not drawn to scale.

1. Determine the area of the rectangle.

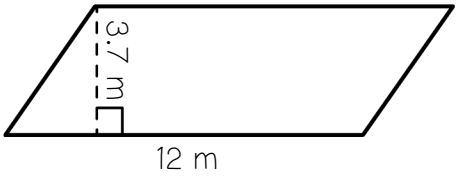


Formula: _____

Plug in Values: _____

Area: _____

2. Determine the area of the parallelogram.

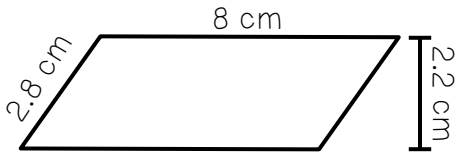


Formula: _____

Plug in Values: _____

Area: _____

3. What is the area of the parallelogram?

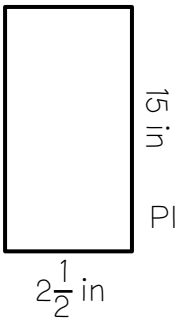


Formula: _____

Plug in Values: _____

Area: _____

4. What is the area of the rectangle?



Formula: _____

Plug in Values: _____

Area: _____

Read each question, sketch a picture, and then solve for the area.

5. A broken rectangular-shaped window is being replaced. It measures 24 inches by 18 inches. How many square inches of glass are needed to repair the window?

6. A parallelogram is being painted on the wall of a playroom. The parallelogram measures 7.3 meters in length and has a height of 5 meters. How many square meters of paint are needed?

7. Amy solved the following question on her math test. Is she correct? If not, explain why and solve the problem correctly.

$A = bh$

$A = 13\ (8.2)$

$A = 106.6\ in^2$

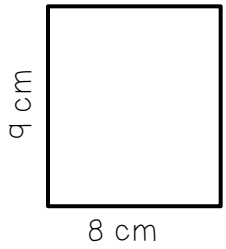
Unit: Geometry
Student Handout 2

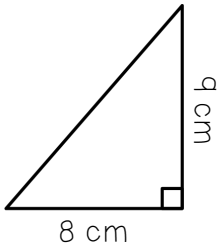
Name _____

Date _____Pd_____

AREA OF TRIANGLES AND TRAPEZOIDS

Two different figures are sketched and labeled below. Complete the t-chart to compare their similarities and differences.



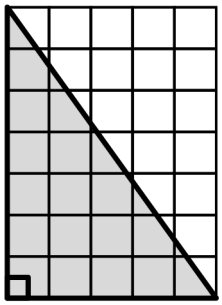
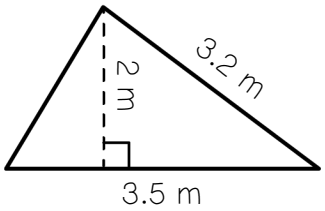
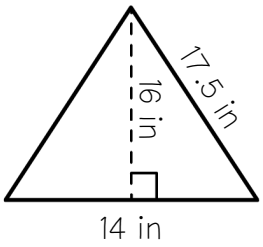


SIMILARITIES	DIFFERENCES

a. If the formula for finding the area of a rectangle is A=bh, how could you describe the formula for finding the area of a triangle?

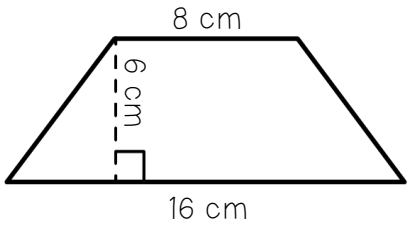
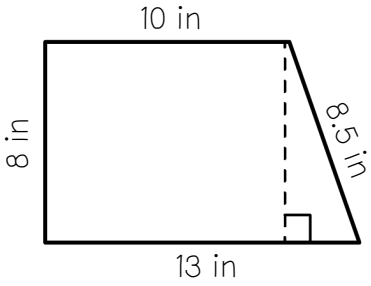
b. What is the area of the rectangle? What is the area of the triangle? Was your hypothesis correct?

Count the dimensions of the first figure below and determine the area. Then, use the formula to find the area of triangles 2 and 3.

TRIANGLE 1	TRIANGLE 2	TRIANGLE 3
		
Formula: _____ Plug in Values: _____ Area: _____	Formula: _____ Plug in Values: _____ Area: _____	Formula: _____ Plug in Values: _____ Area: _____

How do you determine the height of the triangle?

Decompose (take apart) the trapezoids below into familiar shapes. Then, find the area of each trapezoid.

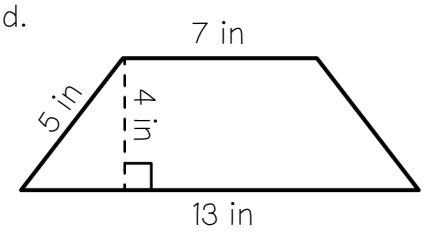
TRAPEZOID 1	TRAPEZOID 2
	

AREA OF TRAPEZOIDS

- A trapezoid is one or two _____ and a _____ combined.
- To find the area, use the formula _____, where:
  - b_1 is the _____
  - b_2 is the _____ and
  - h is the _____ of the trapezoid.

Use your understanding of area to answer the questions below.

1. Use a formula to determine the area of the trapezoid.

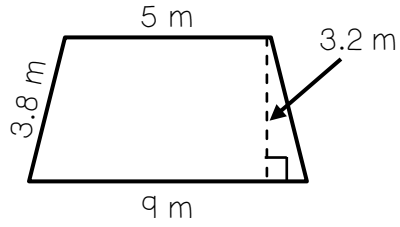


Formula: _____

Plug in Values: _____

Area: _____

2. Use a formula to determine the area of the trapezoid.

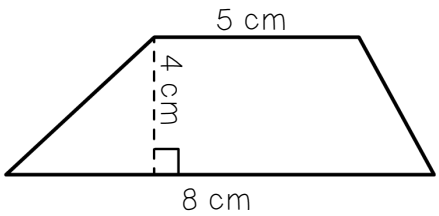


Formula: _____

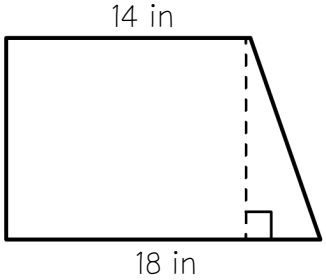
Plug in Values: _____

Area: _____

3. Betsy has calculated the area of the figure below to be 52 cm^2. Determine if she is correct or incorrect, then explain.



4. The trapezoid below has an area of 192 in^2. What is the height of the trapezoid?



Unit: Geometry
Homework 2

Name _____

Date _____ Pd_____

AREA OF TRIANGLES AND TRAPEZOIDS

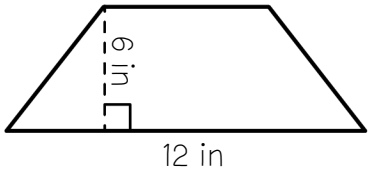
Match each correct answer to a letter and complete the riddle below. Not all choices will be used.

1

Find the area of a right triangle with a height of $8\frac{1}{2}$ feet and a base of 15 feet.

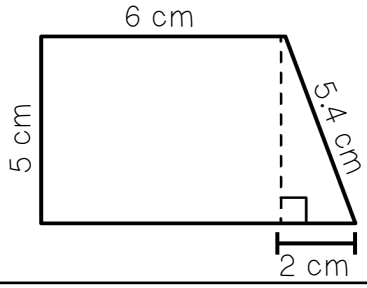
2

What is the area of the trapezoid?



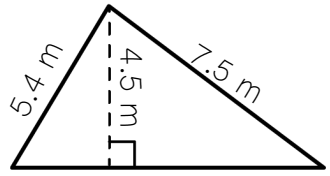
3

Find the area of the trapezoid at the right.



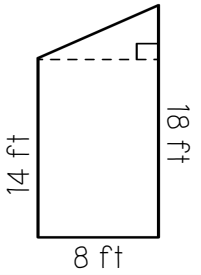
4

Find the area of the triangle below.



5

Find the area of the trapezoid at the right by decomposing it into familiar shapes.

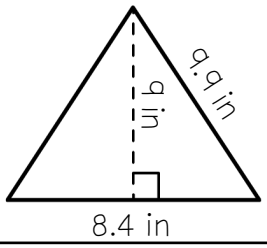


6

A triangle has an area of 42 cm^2. The height of the triangle is 14 centimeters. What is the length of the base of the triangle?

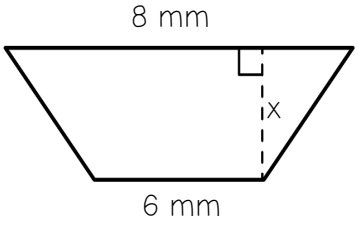
7

What is the area of the triangle?



8

A trapezoid has an area of 35 mm^2. What is the height of the trapezoid?



L: 36	A: 5	F: 12.15	H: 56	R: 37.8	I: 127.5
S: 50.4	C: 12	U: 20.25	N: 35	P: 108	A: 128
R: 63.75	Q: 3	W: 35.4	E: 6	G: 54	T: 24

WHAT DO GEOMETRY TEACHERS HAVE DECORATING THEIR FLOORS?

___ ___ ___ ___ ___ ___ ___ ___ ___

5 3 8 1 6 8 7 4 2

Unit: Geometry
Student Handout 1

Name _____
Date _____ Pd _____

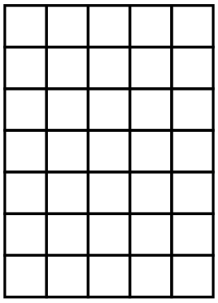
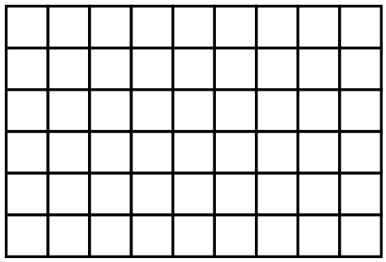
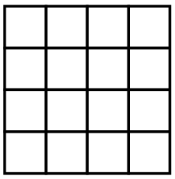
AREA OF RECTANGLES AND PARALLELOGRAMS

AREA OF RECTANGLES

- Area is the surface measurement of a two-dimensional figure. We can think of it as the square units that a shape covers.
- Use the formula $A = bh$, where "b" is the length of the base, and "h" is the height of the rectangle.
- Area is measured in square units:

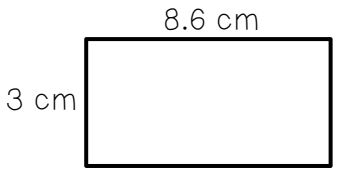
Ex: inches • inches = in^2 feet • feet = ft^2 meters • meters = m^2

Count the number of squares to find the dimensions and area of each rectangle. Then use the area formula to verify your answer.

RECTANGLE 1	RECTANGLE 2	RECTANGLE 3
		
Formula: $A = bh$	Formula: $A = bh$	Formula: $A = bh$
Plug in Values: $A = 5(7)$	Plug in Values: $A = 9(6)$	Plug in Values: $A = 4(4)$
Area: $35\ units^2$	Area: $54\ units^2$	Area: $16\ units^2$

Determine the area of each rectangle below.

1.



Formula: $A = bh$
Plug in Values: $A = 8.6(3)$
Area: $25.8\ cm^2$

2.

Formula: $A = bh$
Plug in Values: $A = 2\frac{1}{4}(1\frac{1}{2})$
Area: $3\frac{3}{8}\ ft^2$

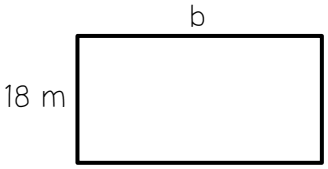
WRITING FORMULAS

- We can also solve for any missing piece of information in the formula by solving a one-step equation.

Ex: A = bh can be written as $b = \frac{A}{h}$ or $h = \frac{A}{b}$.

Use your understanding of the area of rectangles to answer the questions below.

3. The area of the rectangle is 162 m^2.



Formula: A = bh

Plug in Values: 162 = b(18)

Value of b: 9 m

4. Circle all of the formulas below that could be used to find the height of a rectangle with a base of 11 in and an area of 120 in^2.

a. 120 = 11(11)

b. 11 = 120(h)

c. 120 = 11(h)

d. $h = \frac{120}{11}$

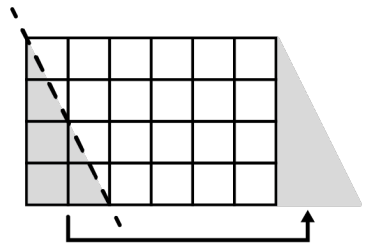
e. $h = \frac{11}{120}$

AREA OF PARALLELOGRAMS

- The dimensions of a parallelogram are also referred to as the base and height.
- Use the formula A = bh, where "b" is the length of the base and "h" is the height of the parallelogram, which makes a 90° angle with the base.

Count the number of squares to find the dimensions and area of parallelogram 1. Then use the area formula to find the area of parallelograms 2 and 3.

PARALLELOGRAM 1

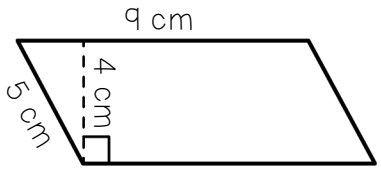


Formula: A = bh

Plug in Values: A = 6(4)

Area: 24 $units^2$

PARALLELOGRAM 2

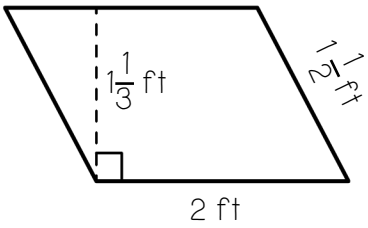


Formula: A = bh

Plug in Values: A = 9(4)

Area: 36 cm^2

PARALLELOGRAM 3



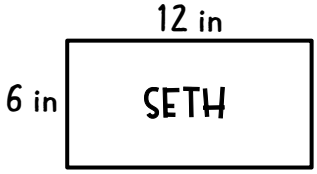
Formula: A = bh

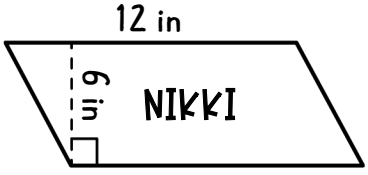
Plug in Values: $A = 2(1\frac{1}{3})$

Area: $2\frac{2}{3}$ ft^2

Use your knowledge of area to answer the question below.

5. Mrs. Lewis asked students to sketch a figure with a base of 12 inches and a height of 6 inches. Did the students complete the task correctly? Describe how the area of a rectangle and the area of a parallelogram with the same dimensions are related.





Yes! Both the rectangle and the parallelogram have the same area since they follow the same process (formula) for finding area, A = bh.

Summarize today's lesson:

Unit: Geometry
Homework 1

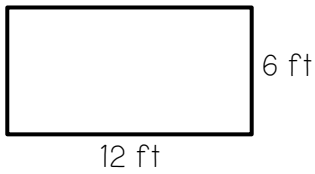
Name _____

Date _____ Pd _____

AREA OF RECTANGLES AND PARALLELOGRAMS

Solve the problems below. Be sure to show your work. Figures are not drawn to scale.

1. Determine the area of the rectangle.

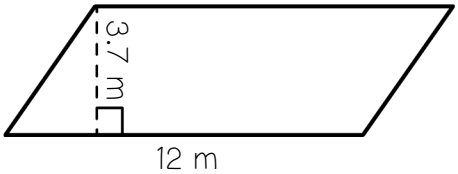


Formula: A = bh

Plug in Values: A = 12(6)

Area: A = 72 ft^2

2. Determine the area of the parallelogram.

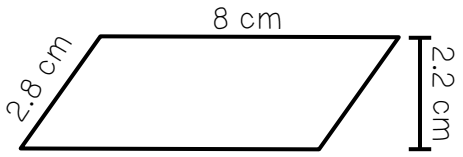


Formula: A = bh

Plug in Values: A = 12(3.7)

Area: A = 44.4 m^2

3. What is the area of the parallelogram?

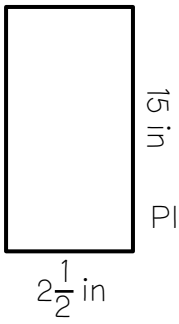


Formula: A = bh

Plug in Values: A = 8(2.2)

Area: A = 17.6 cm^2

4. What is the area of the rectangle?



Formula: A = bh

Plug in Values: A = $2\frac{1}{2}$ (15)

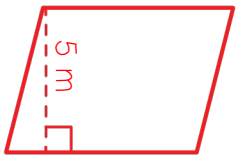
Area: A = 37.5 in^2

Read each question, sketch a picture, and then solve for the area.

5. A broken rectangular-shaped window is being replaced. It measures 24 inches by 18 inches. How many square inches of glass are needed to repair the window?

A = 432 in^2

6. A parallelogram is being painted on the wall of a playroom. The parallelogram measures 7.3 meters in length and has a height of 5 meters. How many square meters of paint are needed?



A = 36.5 m^2

7. Amy solved the following question on her math test. Is she correct? If not, explain why and solve the problem correctly.

A = bh
A = 13 (8.2)
A = 106.6 in^2

No, Amy used the wrong height.
A = bh
A = 13(5.4)
A = 70.2 in^2

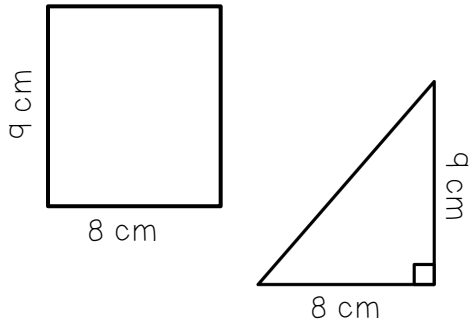
Unit: Geometry
Student Handout 2

Name _____

Date _____ Pd _____

AREA OF TRIANGLES AND TRAPEZOIDS

Two different figures are sketched and labeled below. Complete the t-chart to compare their similarities and differences.



SIMILARITIES	DIFFERENCES
• the shapes have the same dimensions	• the triangle is half the area of the rectangle

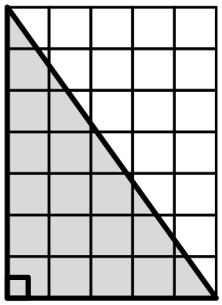
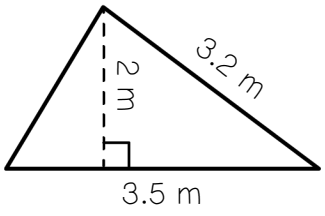
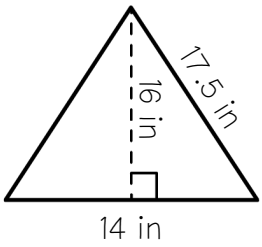
a. If the formula for finding the area of a rectangle is A=bh, how could you describe the formula for finding the area of a triangle?

Ex: The triangle is half the size, so it is multiplied by $\frac{1}{2}$. It can be written: $A = \frac{bh}{2}$ or $A = \frac{1}{2}bh$

b. What is the area of the rectangle? What is the area of the triangle? Was your hypothesis correct?

rectangle area = 72 cm^2
triangle area = 36 cm^2

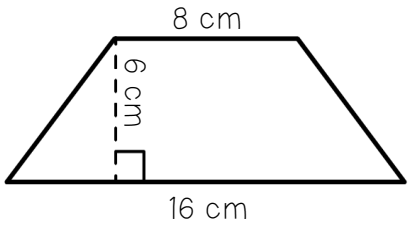
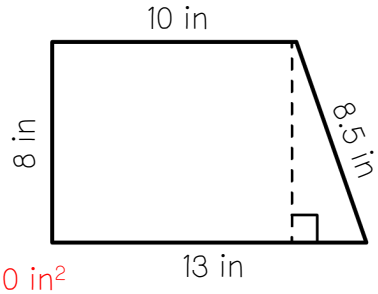
Count the dimensions of the first figure below and determine the area. Then, use the formula to find the area of triangles 2 and 3.

TRIANGLE 1	TRIANGLE 2	TRIANGLE 3
		
Formula: $A = \frac{1}{2}bh$	Formula: $A = \frac{1}{2}bh$	Formula: $A = \frac{1}{2}bh$
Plug in Values: $A = \frac{1}{2}(5)(7)$	Plug in Values: $A = \frac{1}{2}(3.5)(2)$	Plug in Values: $A = \frac{1}{2}(14)(16)$
Area: 17.5 $units^2$	Area: 3.5 m^2	Area: 112 in^2

How do you determine the height of the triangle?

The height of the triangle is how tall the triangle is, from the base to the tallest point. The height makes a 90° angle with the base of the triangle, just like the height of the parallelogram.

Decompose (take apart) the trapezoids below into familiar shapes. Then, find the area of each trapezoid.

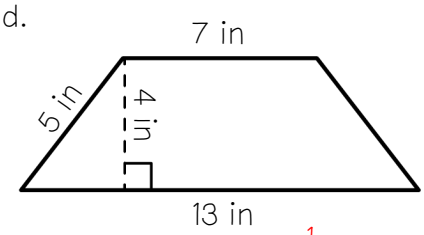
TRAPEZOID 1	TRAPEZOID 2
	
□ = 48 cm²	□ = 80 in²
△ = 12 cm² x 2	△ = 12 in²
Area = 72 cm²	Area = 92 in²

AREA OF TRAPEZOIDS

- A trapezoid is one or two triangles and a rectangle combined.
- To find the area, use the formula $A = \frac{1}{2}(b_1 + b_2)\,h$, where:
  - b_1 is the the length of the first base
  - b_2 is the the length of the second base and
  - h is the height of the trapezoid.

Use your understanding of area to answer the questions below.

1. Use a formula to determine the area of the trapezoid.

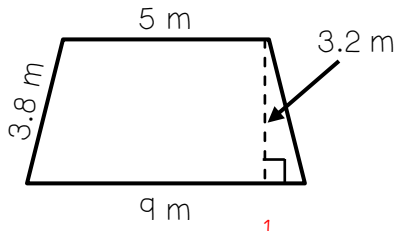


Formula: $A = \frac{1}{2}(b_1 + b_2)h$

Plug in Values: $A = \frac{1}{2}(7 + 13)(4)$

Area: 40 in²

2. Use a formula to determine the area of the trapezoid.

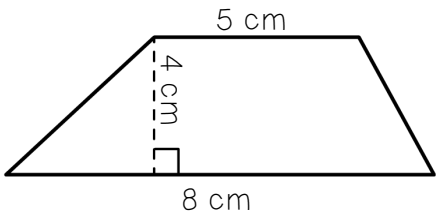


Formula: $A = \frac{1}{2}(b_1 + b_2)h$

Plug in Values: $A = \frac{1}{2}(5 + 9)(3.2)$

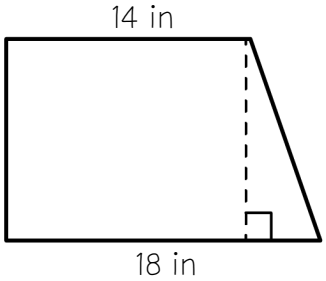
Area: 22.4 m²

3. Betsy has calculated the area of the figure below to be 52 cm². Determine if she is correct or incorrect, then explain.



Betsy is incorrect. She forgot to multiply by $\frac{1}{2}$. The answer should be 26 cm².

4. The trapezoid below has an area of 192 in². What is the height of the trapezoid?



h = 12 in

Unit: Geometry
Homework 2

Name _____

Date _____ Pd _____

AREA OF TRIANGLES AND TRAPEZOIDS

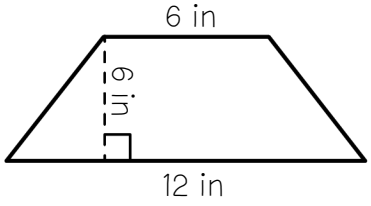
Match each correct answer to a letter and complete the riddle below. Not all choices will be used.

1 Find the area of a right triangle with a height of $8\frac{1}{2}$ feet and a base of 15 feet.

63.75 ft²

R

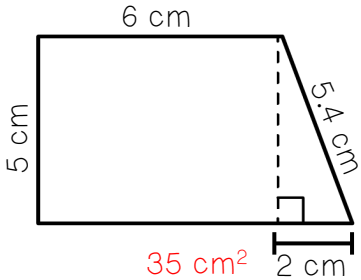
2 What is the area of the trapezoid?



54 in²

G

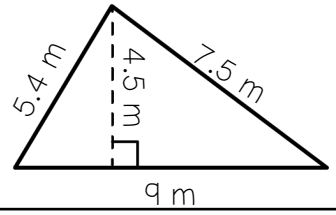
3 Find the area of the trapezoid at the right.



35 cm²

N

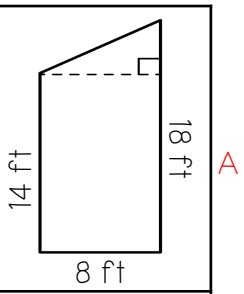
4 Find the area of the triangle below.



20.25 m²

U

5 Find the area of the trapezoid at the right by decomposing it into familiar shapes.



128 ft²

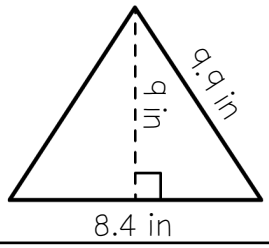
A

6 A triangle has an area of 42 cm². The height of the triangle is 14 centimeters. What is the length of the base of the triangle?

6 cm

E

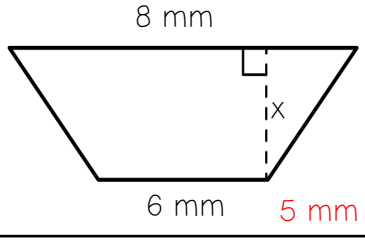
7 What is the area of the triangle?



37.8 in²

R

8 A trapezoid has an area of 35 mm². What is the height of the trapezoid?



5 mm

A

L: 36	A: 5	F: 12.15	H: 56	R: 37.8	I: 127.5
S: 50.4	C: 12	U: 20.25	N: 35	P: 108	A: 128
R: 63.75	Q: 3	W: 35.4	E: 6	G: 54	T: 24

WHAT DO GEOMETRY TEACHERS HAVE DECORATING THEIR FLOORS?

A	N	A	R	E	A	R	U	G
5	3	8	1	6	8	7	4	2