Inspiring Greatness

ISD

INDEPENDENCE SCHOOL DISTRICT

Math Virtual Learning

6th Grade Math

Area of Composite Shapes

April 23, 2020

6th Grade Math
Lesson: April 23, 2020

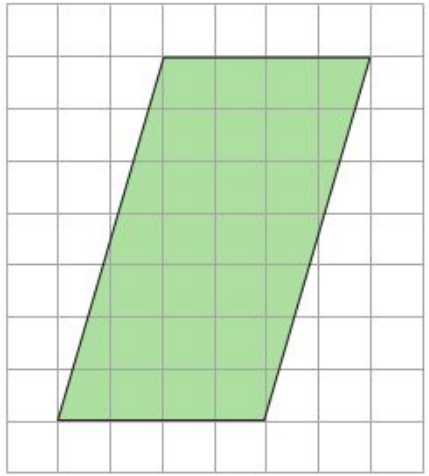
Objective/Learning Target:
Students will find the area of composite shapes/polygons by composing or decomposing the shapes into rectangles and triangles.

Let’s Get Started!

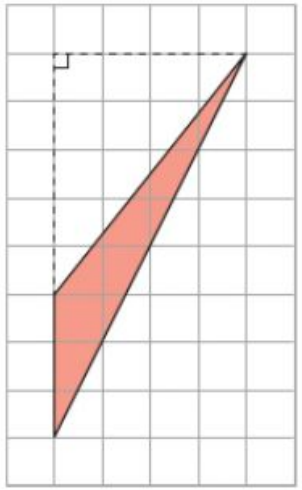
Watch This Video:

Bell Ringer:

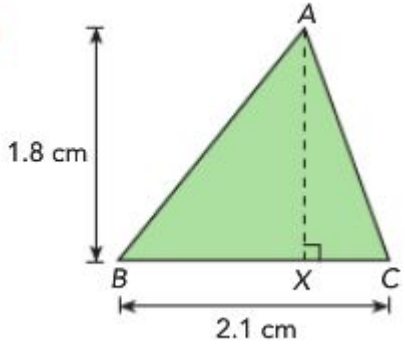
1



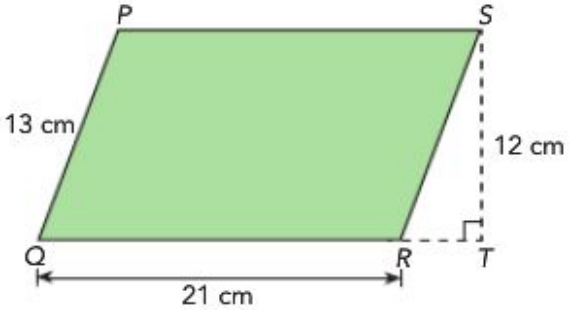
2



3

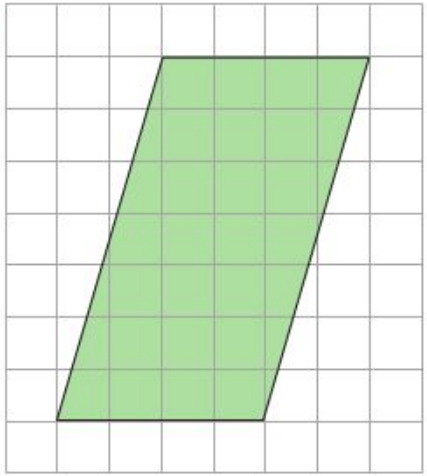


4



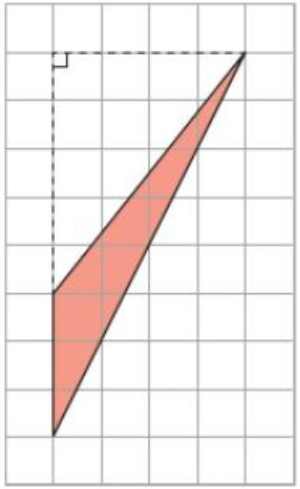
Bell Ringer: (answers)

1



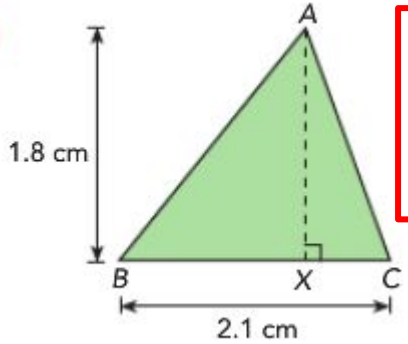
$b = 4$
$h = 7$
$A = 4 \times 7$
$= 28$ sq. un.

2



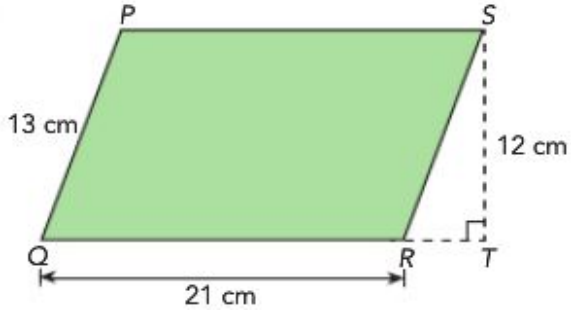
$b = 2$
$h = 4$
$A = (2 \times 4) / 2$
$= 4$ sq. un.

3



$b = 2.1$
$h = 1.8$
$A = (2.1 \times 1.8) / 2$
$= 1.89$ sq. un.

4



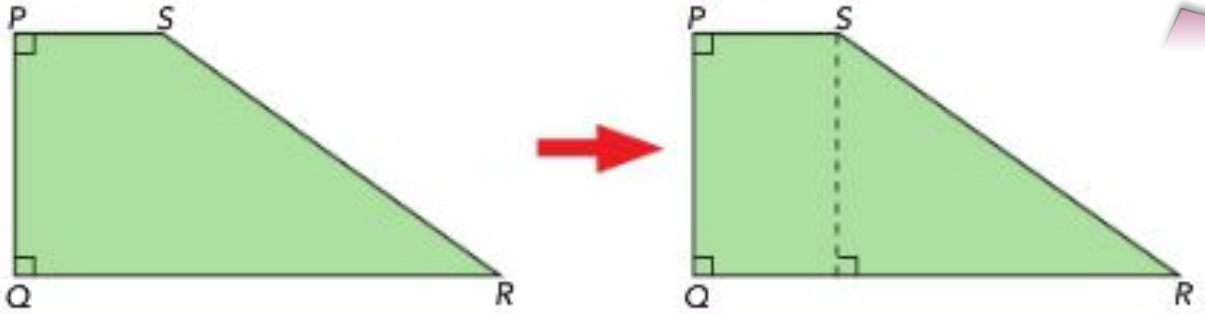
$b = 21$
$h = 12$
$A = 21 \times 12$
$= 252$ sq. un.

Learn:

There are many other ways to divide trapezoids PQRS.

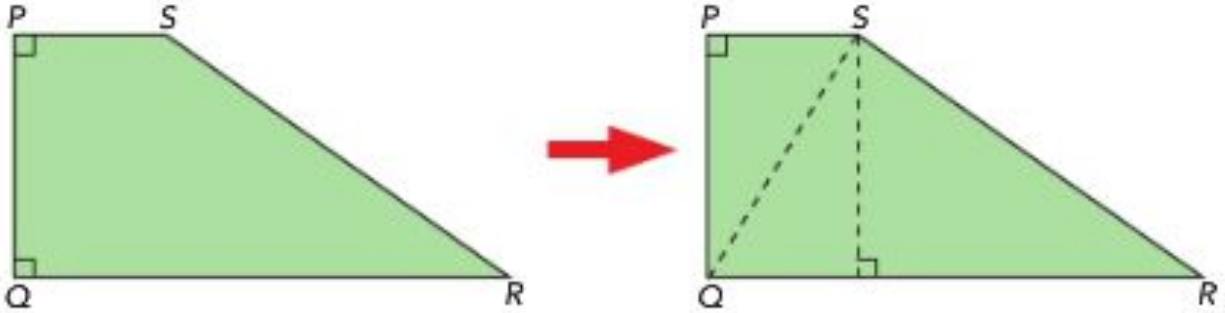
Trapezoid *PQRS* can be divided into many polygons.

It can be divided into a rectangle and a triangle.



Dividing the trapezoid into rectangles and triangles is called **decomposing**.

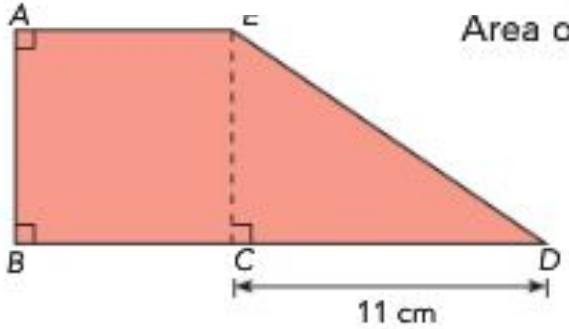
It can also be divided into three triangles.



After decomposing the trapezoid PQRS into triangles and rectangles, you can find the area of the smaller pieces using the formulas you already know. Finally, add the smaller areas to find the total area of the trapezoid PQRS.

Learn:

Trapezoid *ABDE* is made up of square *ABCE* and triangle *ECD*. The area of square *ABCE* is 64 square centimeters. The length of $\overline{CD}$ is 11 centimeters. Find the area of triangle *ECD*, and trapezoid *ABDE*.



Area of square *ABCE* = 64 cm²

$\ell^2 = 64$, so

$\ell = \sqrt{64}$

$\ell = 8$

To find the side length of a square, find the square root of the area.

Use the fact that *EC* = 8 and is also the height of triangle *ECD*.

Area of triangle *ECD* $= \frac{1}{2}bh$ Write formula.

$= \frac{1}{2} \cdot CD \cdot EC$ Substitute.

$= \frac{1}{2} \cdot 11 \cdot 8$ Multiply.

$= 44$ cm²

Putting it all together....

The area of triangle *ECD* is 44 square centimeters.

Area of trapezoid *ABDE*

= area of square *ABCE* + area of triangle *ECD*

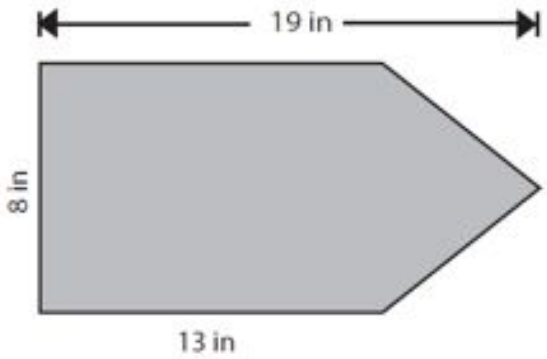
= 64 + 44

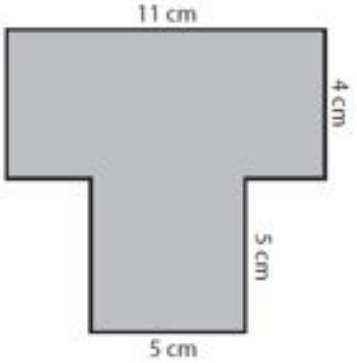
= 108 cm²

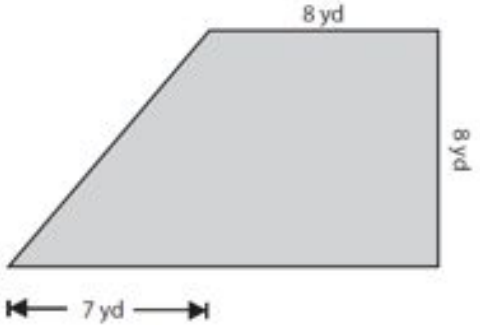
The area of trapezoid *ABDE* is 108 square centimeters.

Practice:

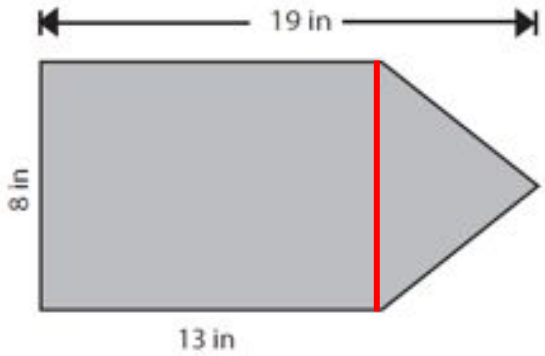
Find the area of each composite figure below.







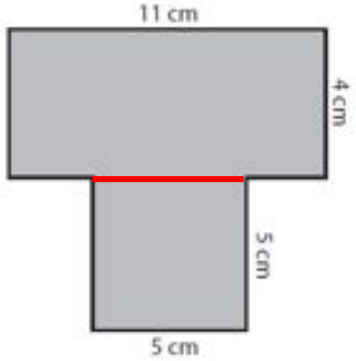
Practice: *(Answer Key)*



Triangle:
b= 8, h= 19 - 13 = 6
A = (8 x 6)/2 = 48/2 = 24 sq. in

Rectangle:
A= l x w = 13 x 8 = 104 sq. in

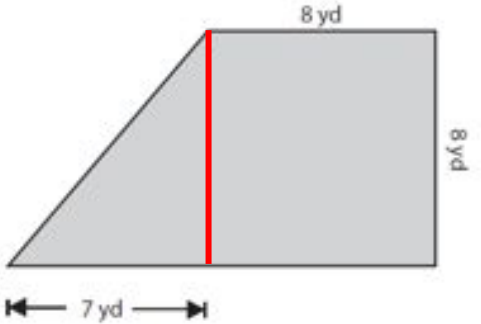
Combined Area:
A= 24 + 104 = 128 sq. in



Rectangle:
A = l x w = 11 x 4 = 44 sq. cm

Square:
A = l x w = 5 x 5 = 25 sq. cm

Combined Area:
A = 44 + 25 = 69 sq. cm



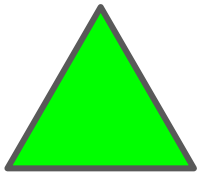
Triangle:
b = 7, h = 8
A = (b x h)/2 = (7 x 8)/2
= 56/2 = 28 sq. yd.

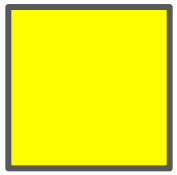
Square:
A = l x w = 8 x 8 = 64 sq. yd.

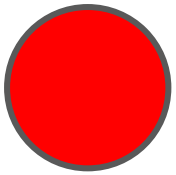
Combined Area:
A = 28 + 64= 92 sq. yd.

Reflection:

Complete the triangle-square-circle reflection for today's lesson.







What were the three main points of today's lesson?	What squared (made sense) with you from today's lesson?	What questions do you still have circling around in your head?

Additional Resources:

Click on the links below to get additional practice and to check your understanding!

Area of L composite shape

Khan Academy: Area of Composite Shapes

IXL: Area of Composite Shapes