

eDay Lesson: Area of a Parallelogram, Triangle and Trapezoid

Part 1: Area of a Parallelogram.

Theorem 10-2: Area of a parallelogram

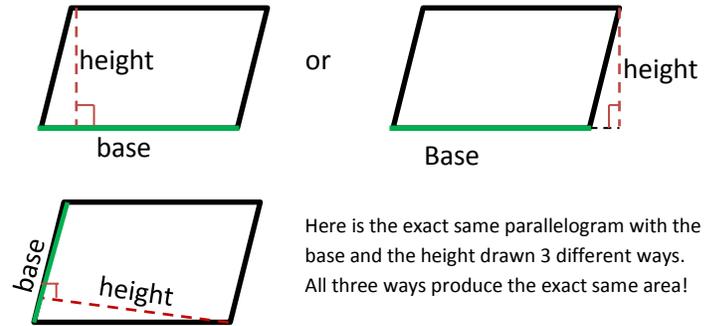
Area of a parallelogram is the product of the base and the corresponding height

$$A = bh$$

Definitions:

Base – any side of a parallelogram

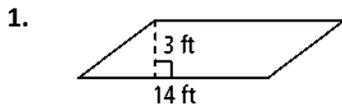
Height – Segment that starts at the side opposite the base and is drawn perpendicular to the base.



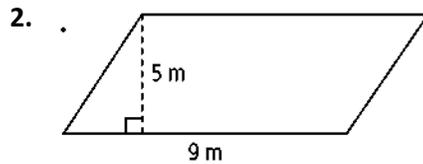
Here is the exact same parallelogram with the base and the height drawn 3 different ways. All three ways produce the exact same area!

For extra tutorials watch this 3 minute video: <http://www.youtube.com/watch?v=ROJc1tuOUw>

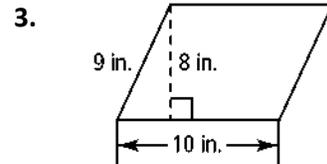
Find the area of each parallelogram.



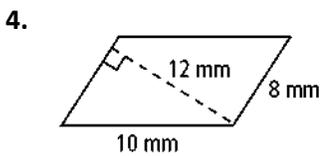
Area = _____



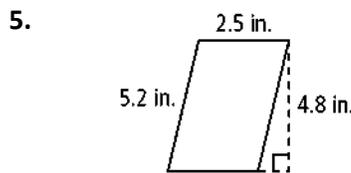
Area = _____



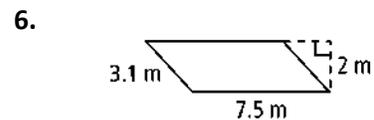
Area = _____



Area = _____



Area = _____



Area = _____

7. A parallelogram has area 35 in² and height 7in. Find its base.

8. A parallelogram has area 391 cm² and base 17cm. Find its height.

Part 2: Area of a Triangle.

Theorem 10-3: Area of a Triangle

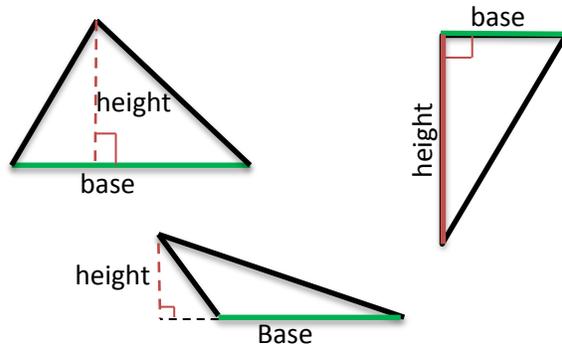
Area of a triangle is half the product of the base and the corresponding height

$$A = \frac{1}{2}bh$$

Definitions:

Base – any side of the triangle.

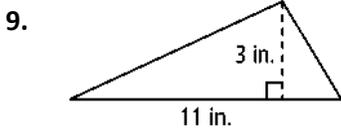
Height – segment that starts at the vertex opposite the base and is perpendicular to the opposite side (also known as the altitude).



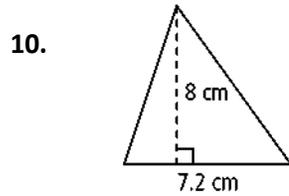
Note that the extended side is NOT part of the base

For extra tutorials watch this 2 minute video: <http://www.youtube.com/watch?v=YTyz1EQ40U>

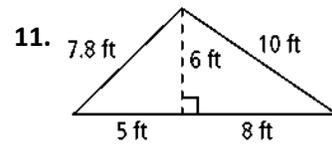
Find the area of each triangle.



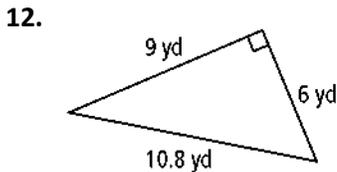
Area = _____



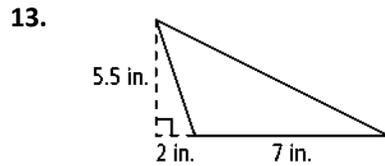
Area = _____



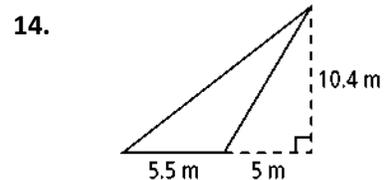
Area = _____



Area = _____



Area = _____



Area = _____

15. A triangle has an area of 24m^2 and a base length of 8m. Find its height.

16. A triangle has an area of 16ft^2 and a height of 4ft. Find its base.

Part 3: Area of a Trapezoid.

Theorem 10-4: Area of a Trapezoid

The area of a trapezoid is half the product of the height and the sum of the two bases.

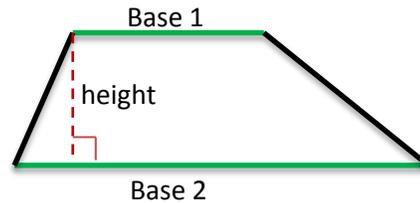
$$A = \frac{1}{2}h(b_1 + b_2)$$

Definitions:

Base – The two parallel sides of the trapezoid

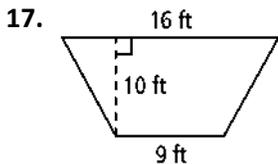
Height – perpendicular segment connecting the two bases.

It helps to think about this formula as “the average of the bases times the height”

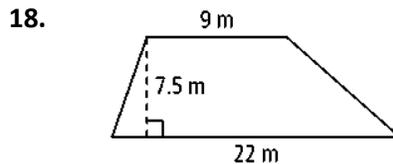


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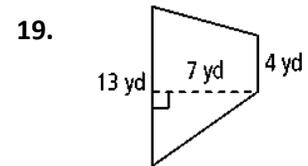
Find the area of each trapezoid



Area = _____

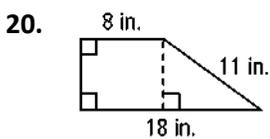


Area = _____

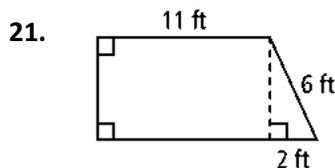


Area = _____

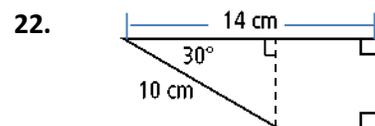
Use the Pythagorean Theorem or Special Right Triangles to find the lengths of the missing bases and/or heights. Then find the area of the trapezoid. Round to the nearest tenth.



Area = _____



Area = _____



Area = _____