Geometry Unit 1, part b: Area

Bronx Early College Academy

Christopher J. Huson PhD

19-23 September 2022

Learning Target: I can calculate areas

CCSS: HSG.CO.A.1 Know precise geometric definitions 1.8 Monday 19 Sept

Do Now: Practice unit conversion

1. How many days are in a week?
2. Find the number of weeks in 365 days.
   (show calculation with units)

Quiz results

Lesson: Rectangle, triangle, parallelogram area formulas

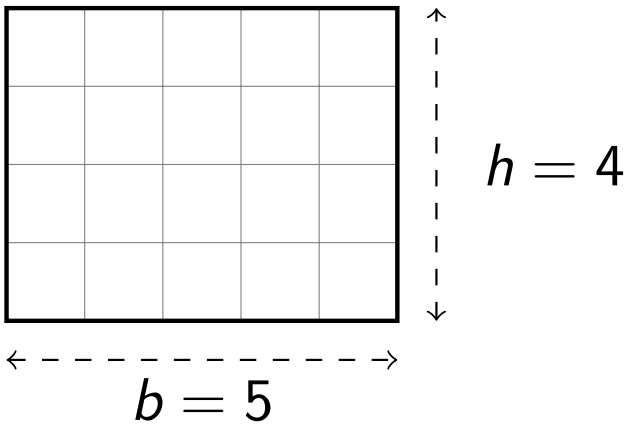
Extension: Scientific notation

The *area* of a rectangle is its base $\times$ height.

We also say "length times width"

Formula for the area of a rectangle:

$$A = b \times h$$



$$A = 5 \times 4 = 20$$

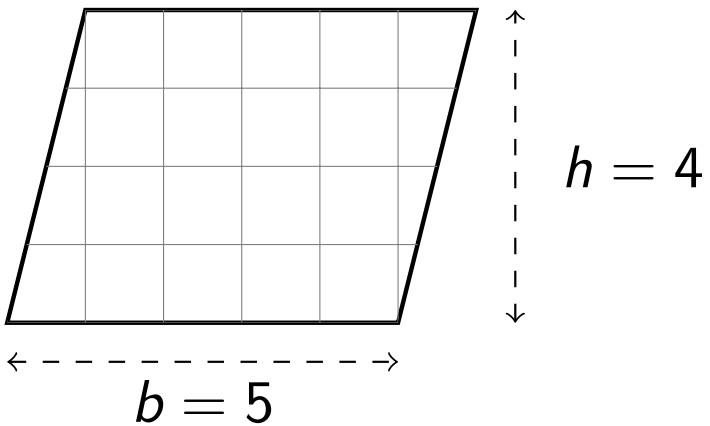
Area the quantity of unit squares that fill a shape

A parallelogram's area has the same formula as a rectangle.

Use the height, not the length of the slanted side.

Formula for the area of a parallelogram:

$$A = b \times h$$



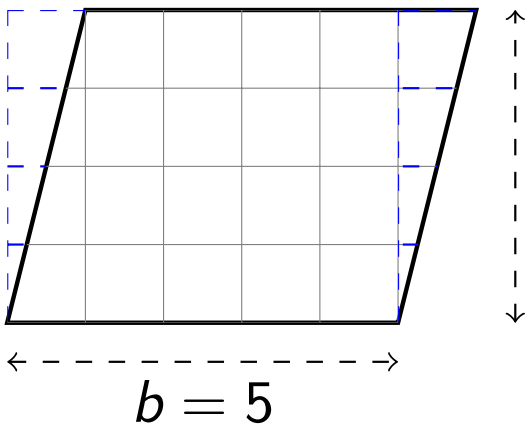
$$A = 5 \times 4 = 20$$

A parallelogram's area has the same formula as a rectangle.

Use the height, not the length of the slanted side.

Formula for the area of a parallelogram:

$$A = b \times h$$



$$A = 5 \times 4 = 20$$

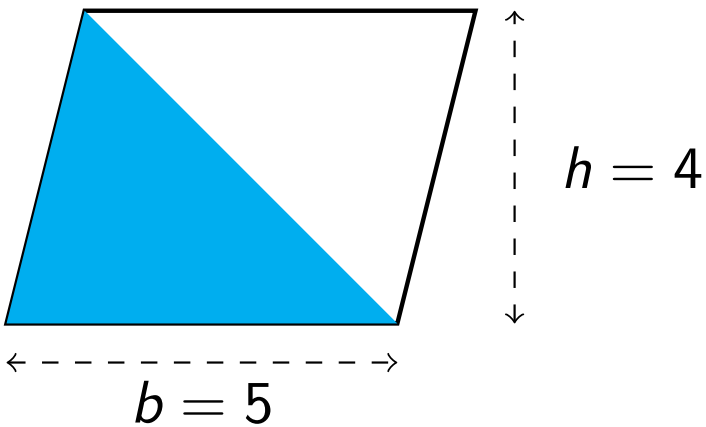
The two blue triangles match

A triangle has half the area of its base times height.

Use the height, not the side length.

Formula for the area of a triangle:

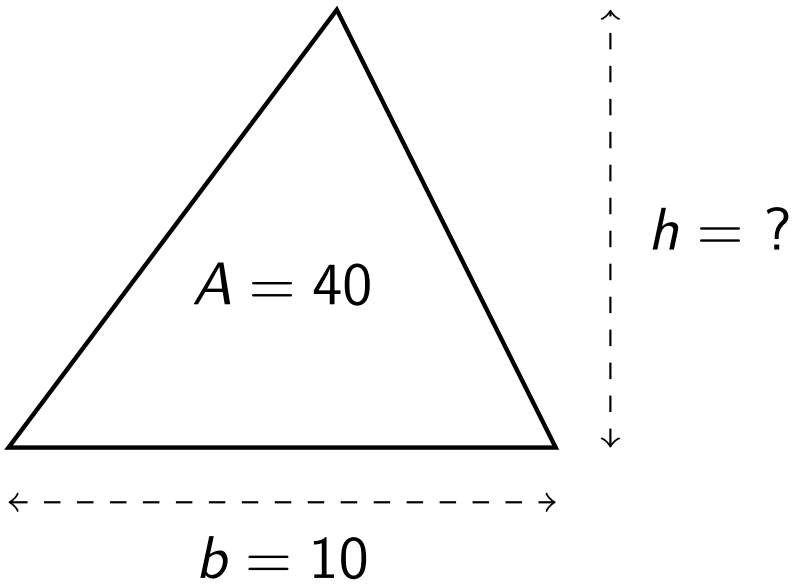
$$A = \frac{1}{2} b \times h$$



$$A = \frac{1}{2}(5 \times 4) = 10$$

Find a missing dimension using the area formula

Given the area of a triangle is 40 and its base is 10, find its height.



$$A = \frac{1}{2}(10 \times h) = 40$$

Write formulas in notebook

Rectangle $A = b \times h$ (base times height or length times width)

Parallelogram $A = b \times h$

Triangle $A = \frac{1}{2}(b \times h)$

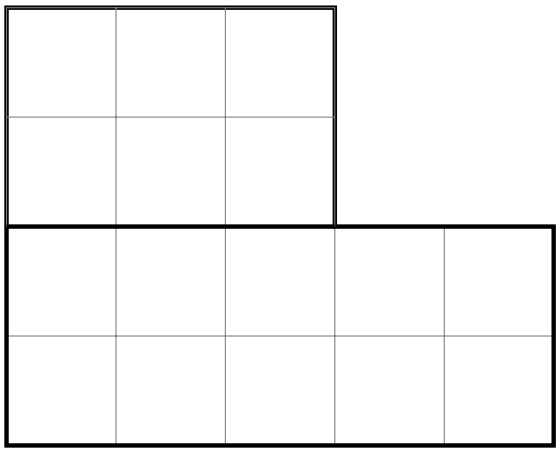
Area the quantity of unit squares that fill a shape

Units We say "square units", i.e. square inches (abbreviated in^2), square miles, etc.

Learning Target: I can calculate the area of a circle

CCSS: HSG.CO.A.1 Know precise geometric definitions 1.9 Tuesday 20 Sept

Do Now: Two rectangles are shown. Calculate the area of each and the combined total area.



Lesson: Area of a circle, π, decimals, powers of ten, rounding

Extension: Significant figures

Learning Target: I can quantify error in calculations

CCSS: HSG.CO.A.1 Know precise geometric definitions 1.10 Wednesday 21 Sept

Do Now: Find the area of a circle with radius $b = 10$ centimeters, rounding to the nearest whole number.
circle image
Lesson: Percent error formula

Extension: Confidence intervals

Learning Target: I can study together with my classmates

CCSS: HSG.CO.A.1 Know precise geometric definitions 1.11 Thursday 22 Sept

Do Now: Find the area of a circle with radius $b = 10$ centimeters, rounding to the nearest whole number.
circle image
Lesson: Peer review, notebook check, homework inventory due

Unit test tomorrow

Groupwork review for test tomorrow

"Roundtable" of four students, with four topics assigned

Geometry skills to study / teach

1. Conventions: terminology, notation, diagramming
2. Modeling situations with algebra
3. Perimeter and special shapes:
   - Scalene, isosceles, and equilateral $\triangle$s
   - Squares, rectangles, parallelograms, trapezoids, rhombuses, kites (quadrilateral side $\cong$s will be marked)
4. Solving algebraic equations for one variable

Learning Target: I can quantify length and area

CCSS: HSG.CO.A.1 Know precise geometric definitions 1.12 Friday 23 Sept

Unit test