

LESSON 6.5 : TRAPEZOIDS

Pages 332-333

They will know what a trapezoid is, but this is all about using the right terms to define it. Pay attention to the terms in bold - bases, legs, base angles, isosceles trapezoids, etc.

You can start by having them define terms that we have gone over in class. Ask them what a polygon is (a figure formed by 3 or more segments called sides). Ask them to give an example of a shape that is not a polygon (i.e. a circle). Then ask them what we call a 4-sided polygon (if they say square or rectangle, tell them to be more general). The answer is quadrilateral. Then ask them what a quadrilateral is where both pairs of opposite sides are parallel (parallelogram). Then ask them what a parallelogram is in which all 4 sides are congruent (rhombus). Then ask them what a rhombus is in which all 4 angles are congruent or 90 degrees (square). Ask them what a parallelogram is that has 4 90 degree angles is not a rhombus (it has pairs of opposite sides that are parallel but the consecutive sides are not congruent)--the answer to this is a rectangle. Have them draw the shapes--this will help visualize it.

Now we get to the definition of a trapezoid--this must have EXACTLY one pair of parallel sides. Thus a trapezoid and a parallelogram are definitionally two distinct things. Show them the difference between base and leg as described on page 332. Show them the special example of an isosceles trapezoid and remind them of an isosceles triangle, which has 2 congruent sides.

Theorems 6.12 and 6.13 should be pretty straightforward for them. Theorem 6.13 follows naturally from 6.12 and from what they already know about parallel lines. Remind them of supplementary angles (2 angles that add up to 180 degrees), and how angles A and D or B and C must be supplementary because they are between 2 parallel lines. Thus, if D and C are the same, their respective supplementary angles A and B must also be the same, because $D + A = 180$, and $C + B = 180$. They will work through this a bit more in Example 1.

Have them work through the checkpoint on page 333, paying special attention to the fact that we are told it is an isosceles trapezoid.

Midsegments - This is an important spot to review the difference between a base and a leg. I like to think of the bases as the floor and ceiling. The midsegment can be thought of as the average of those 2 lengths, as shown in the formula $MN = \frac{1}{2}(AD + BC)$. So if BC is 10, and AD is 6, MN would be 8.

Have them work through Example 2 and then the checkpoints below. I will be available to be reached on the GroupMe, particularly between the hours of 9am and 11am but will probably be available outside of that time as well.