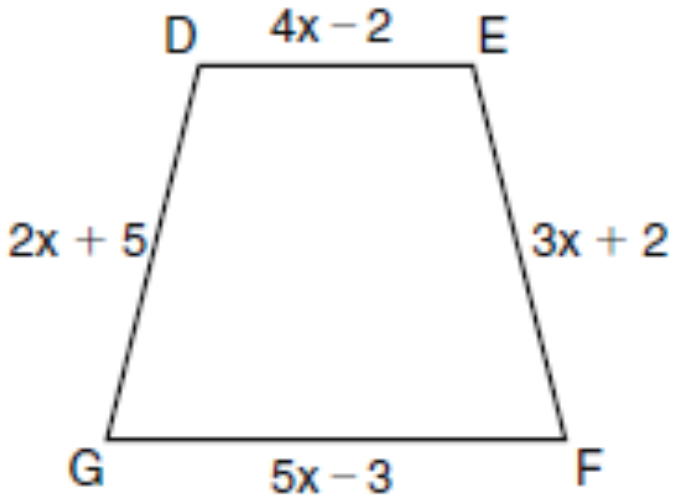
Aim: How do we use the properties of a trapezoid to solve problems.?

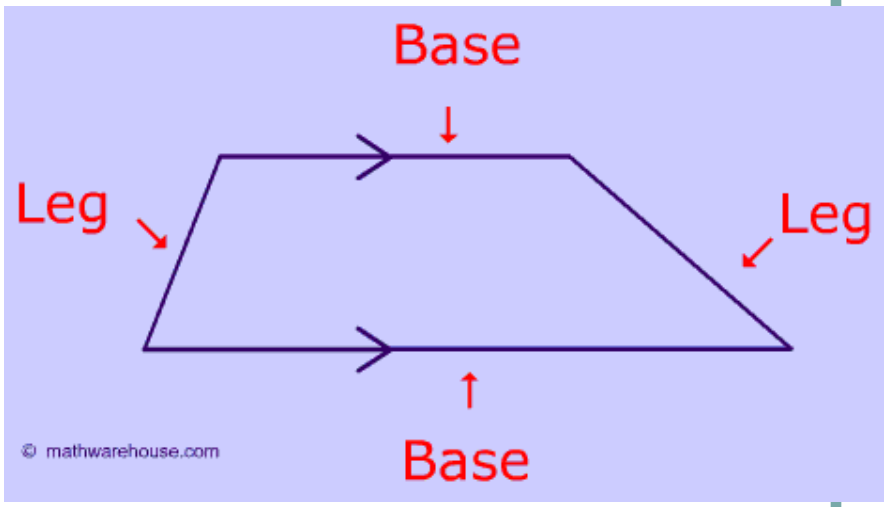
- Do Now: DEFG is an isosceles trapezoid. Find the value of x.



Properties of Trapezoids

A trapezoid is a quadrilateral with:.

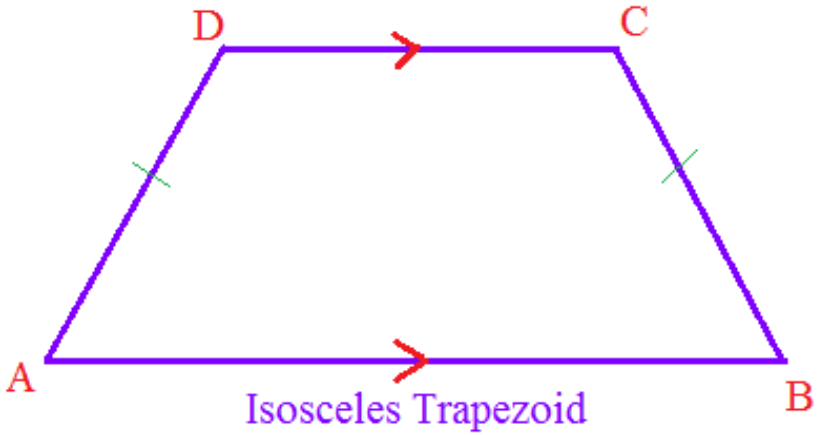
- One pair of parallel sides called bases.
- The nonparallel sides are the legs of the trapezoid.
- Two pairs of base angles.



Isosceles Trapezoids

A trapezoid is isosceles IF and ONLY IF it has:

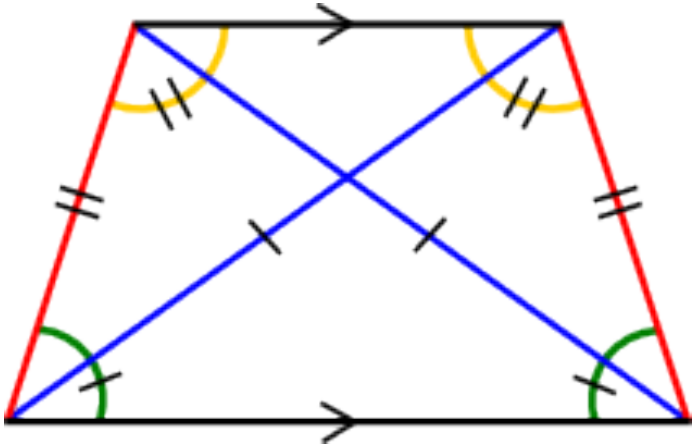
- Two congruent legs



Isosceles Trapezoid

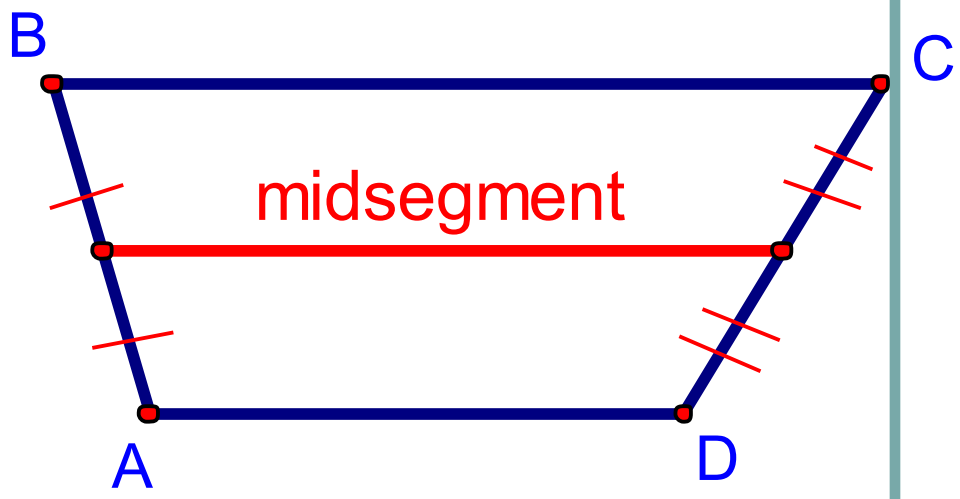
Plus

- Congruent Diagonals
- Congruent Base Angles



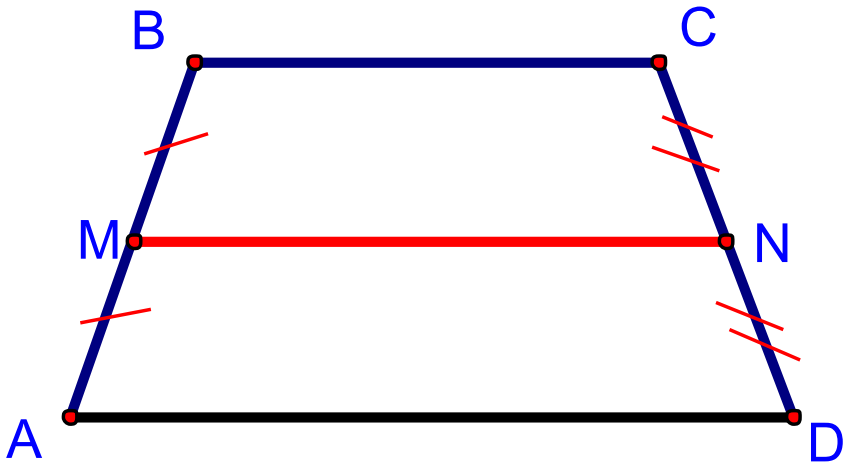
Midsegment of a trapezoid

- The midsegment of a trapezoid is the segment that connects the midpoints of its legs.



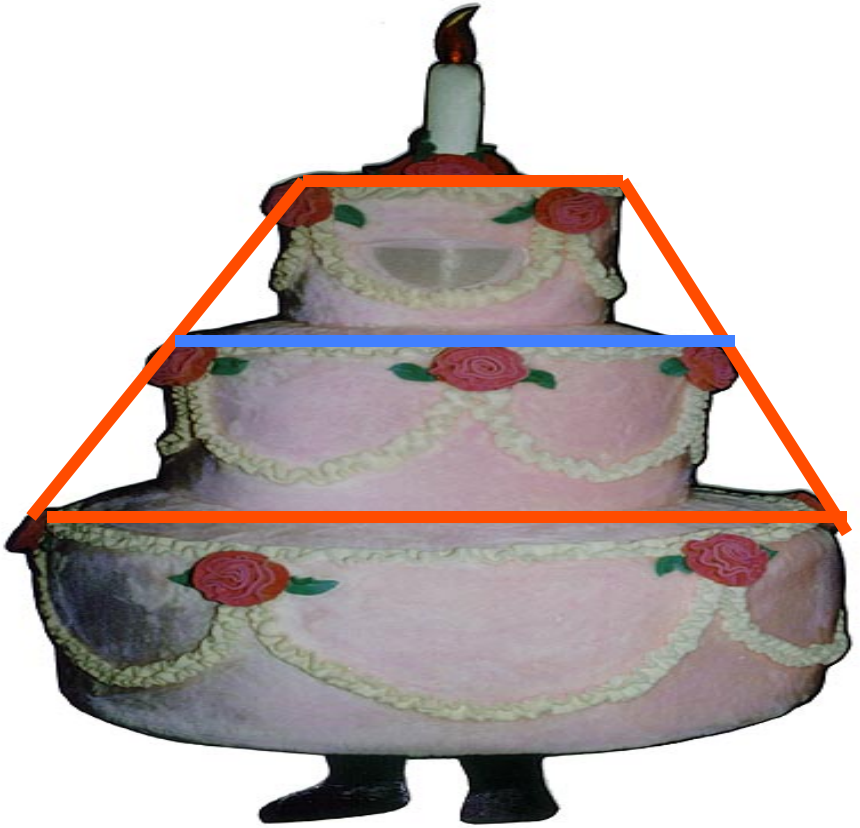
Theorem 6.17: Midsegment of a trapezoid

- The midsegment of a trapezoid is parallel to each base and its length is one half the sums of the lengths of the bases.
- $MN \parallel AD, MN \parallel BC$
- $MN = \frac{1}{2}(AD + BC)$



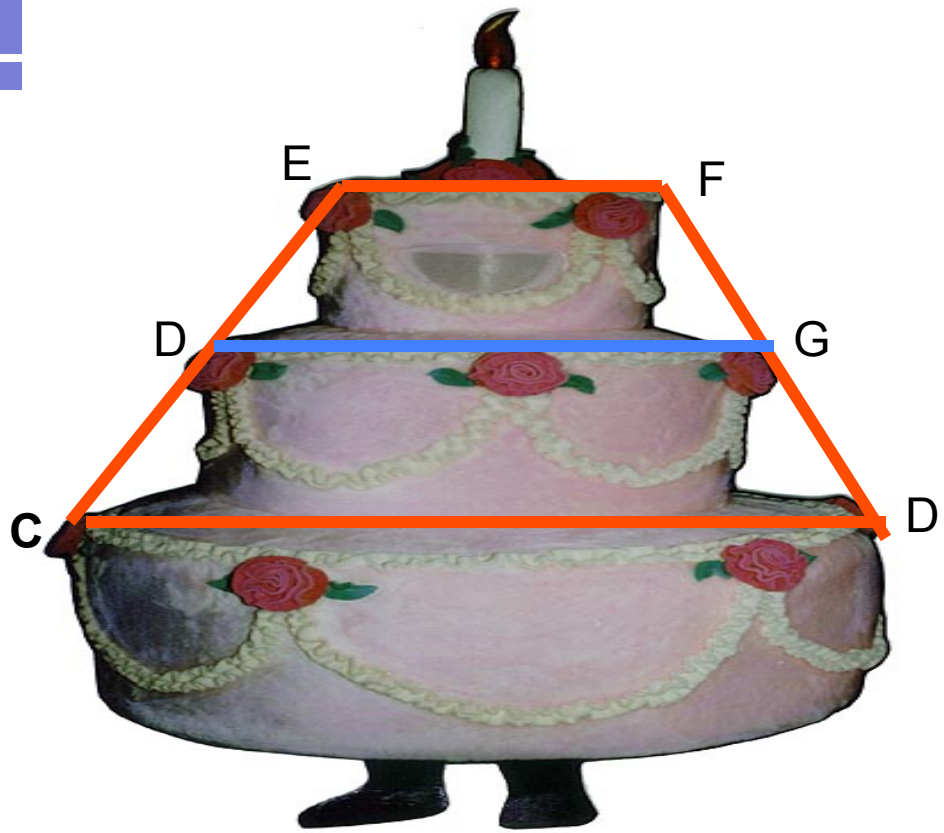
Finding Midsegment lengths of trapezoids

- LAYER CAKE A baker is making a cake like the one at the right. The top layer has a diameter of 8 inches and the bottom layer has a diameter of 20 inches. How big should the middle layer be?

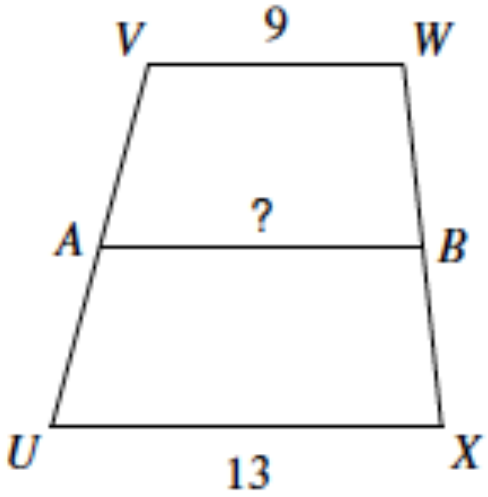


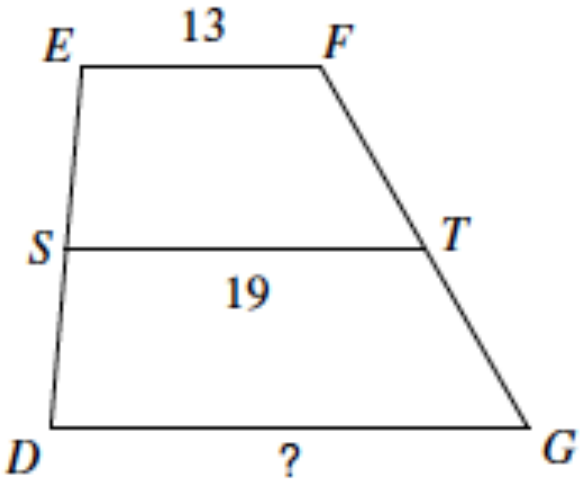
Finding Midsegment lengths of trapezoids

- Use the midsegment theorem for trapezoids.
- DG = ½(EF + CH)= ½ (8 + 20) = 14”

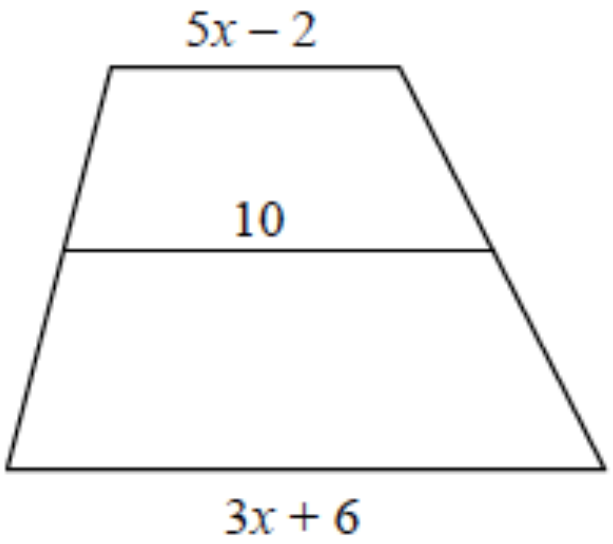


Your Turn





Working with Variables



Independent Practice

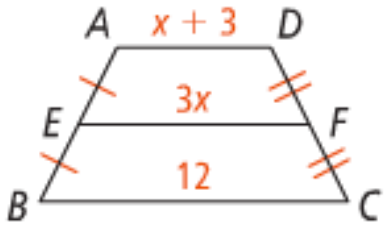
- Run Pg 394 #13-15
- Sprint Pg 395 #31 – 33
- Review: Pg 398 #2 – 5, 9

Run Pg 394 #13-15

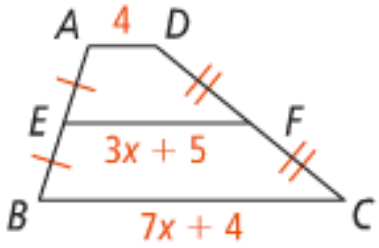
Find *EF* in each trapezoid.

See Proble

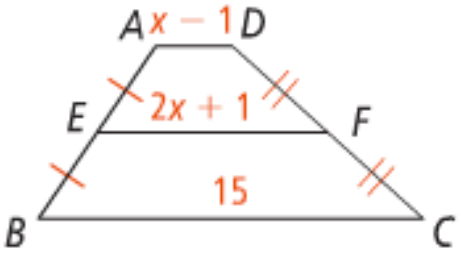
13.



14.



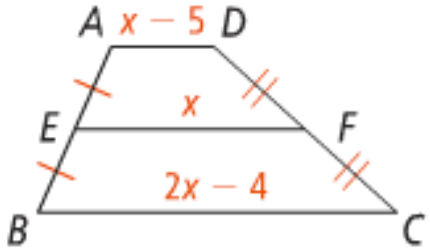
15.



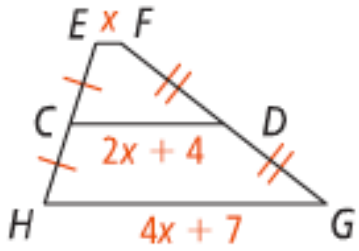
Sprint Pg395 #31-35

Algebra **Find the lengths of the segments with variable expressions.**

31.



32.



33.