

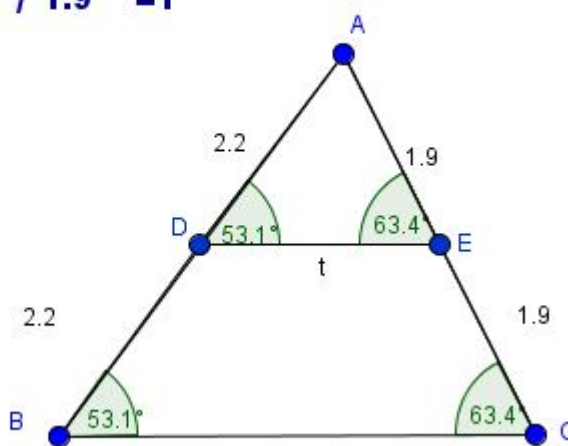
Student Activity Theorem 12

Use in connection with interactive file "Theorem 12" on the Student's CD.

To realize that given the triangle ABC and a line t which is parallel to BC and cuts [AB] in the ratio $m: n$, then it also cuts [AC] in the same ratio.

$$AD / DB = 2.2 / 2.2 = 1$$

$$AE / EC = 1.9 / 1.9 = 1$$



1. How can you tell, if the line t is parallel to the $|BC|$?

2. What are the lengths of $|AD|$ and $|DB|$ in the interactive file and do you notice anything about these lengths?

3. What are the lengths of $|AE|$ and $|EC|$ in the interactive file and do you notice anything about these lengths?

4. Has $\frac{|AD|}{|DB|}$ the same value as $\frac{|AE|}{|EC|}$?

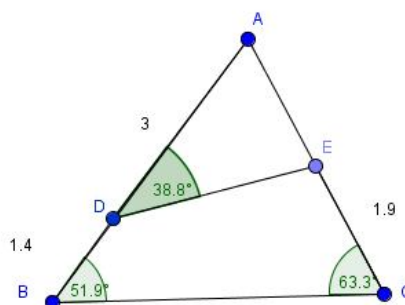
5. Move some of the points. What happens to the angles in the triangle ABC and the triangle ADE? Is there any relationship between them and what does this imply?

6. As you move the points, what happens to the relationship between the ratios $\frac{|AD|}{|DB|}$ and $\frac{|AE|}{|EC|}$?

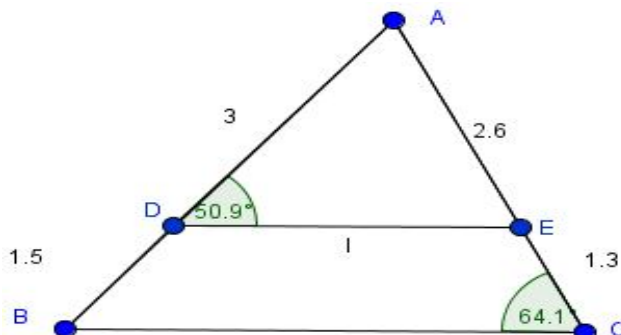
7. Do you agree with the statement "Given a triangle ABC, if the line t is parallel to $|BC|$ and cuts $[AB]$ in the ratio $m:n$, then it also cuts $[AC]$ in the same ratio."? Explain your answer.

Challenges

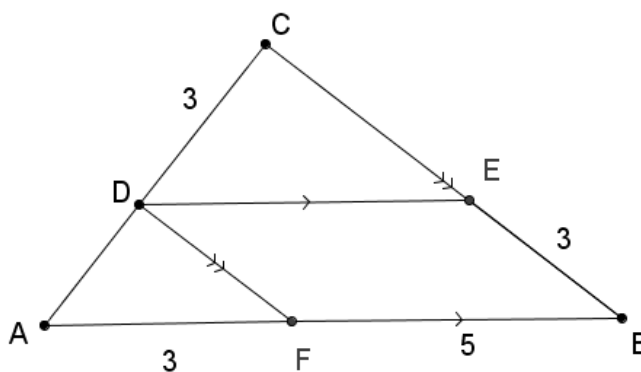
8. Can the above theorem be applied to the following diagram, explain your answer.



9. What is the values of the angles $\angle ABC$ and $\angle AED$ given $|BC|$ is parallel to $|DE|$?



10. Given that $|DF|$ is parallel to $|CB|$ and $|DE|$ is parallel to $|AB|$, find the length of $|CE|$.



11. What is the value of the angle BAC , given $|DE|$ is parallel to $|BC|$?

