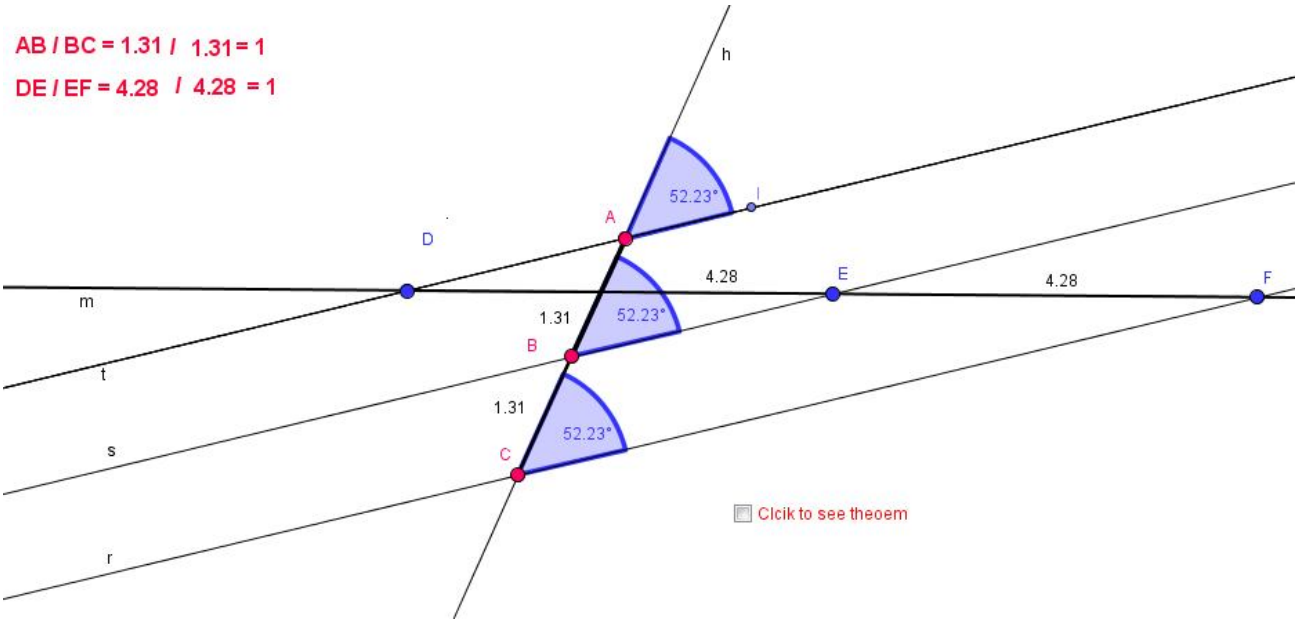
Student Activity Theorem 11

Use in connection with interactive file "Theorem 11" on the Student's CD.

To investigate whether, if three parallel lines cut off equal segments on some transversal line, they cut off equal segments on any other transversal.



1. What is meant by a parallel line and name three sets of parallel lines in the interactive file?

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   _____

2. How can you tell that the lines r, s and t are parallel in the interactive file?

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   _____

3. What is meant by a transversal line and name two transversal lines in the interactive file?

   _____

   _____

4. What are the lengths of $|AB|$ and $|BC|$ in the interactive file? Are these lengths equal?

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5. What are the lengths of $|DE|$ and $|EF|$ in the interactive file? Are these lengths equal?

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6. Move the point A in the interactive file and read the lengths of $|AB|$ and $|BC|$. What is the relationship between the lengths of $|AB|$ and $|BC|$? Now without moving any points find the lengths of $|DE|$ and $|EF|$ and find the relationship if any between them. Repeat for three different locations. Show calculations.

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7. Did you see a pattern develop in question 6 and if so explain it in your own words?

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8. By moving the points on the interactive file, can you find any situation where the statement "If three parallel lines cut off equal segments on some transversal line, then they will cut off equal segments on any other transversal" is not true. Explain.

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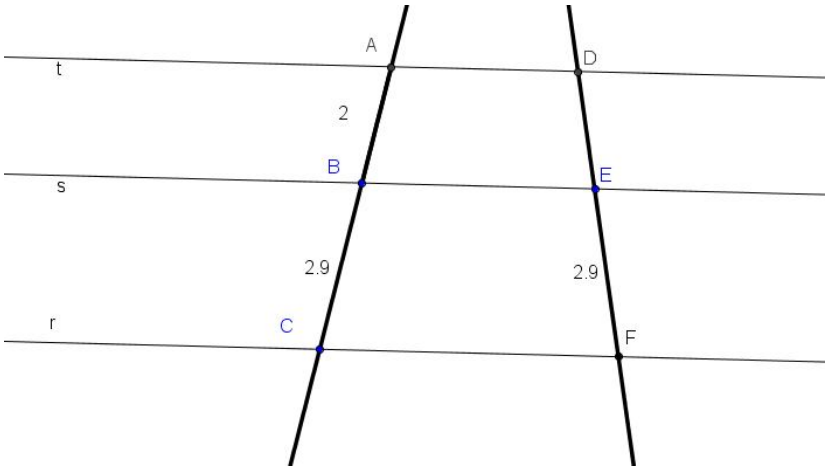
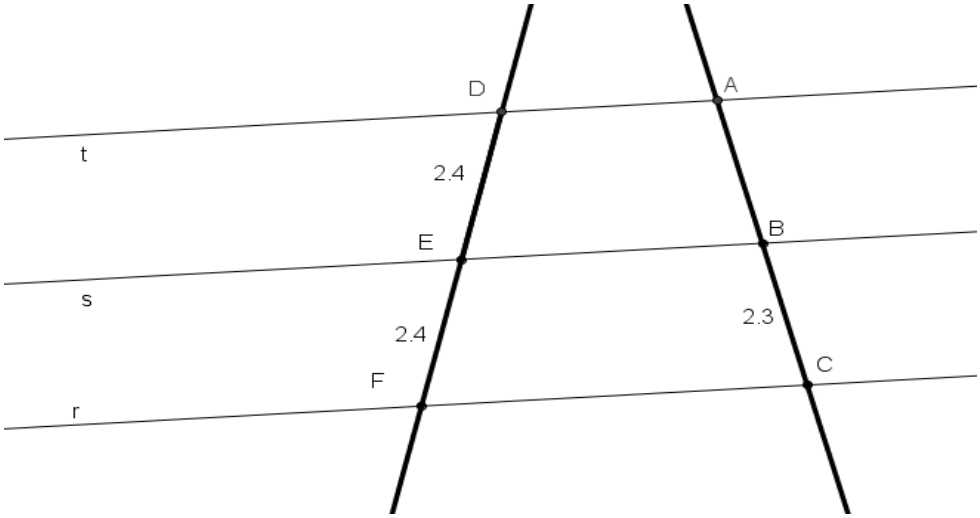
9. If you know lines t, s and r are parallel, find the length of $|DE|$. Explain your answer.

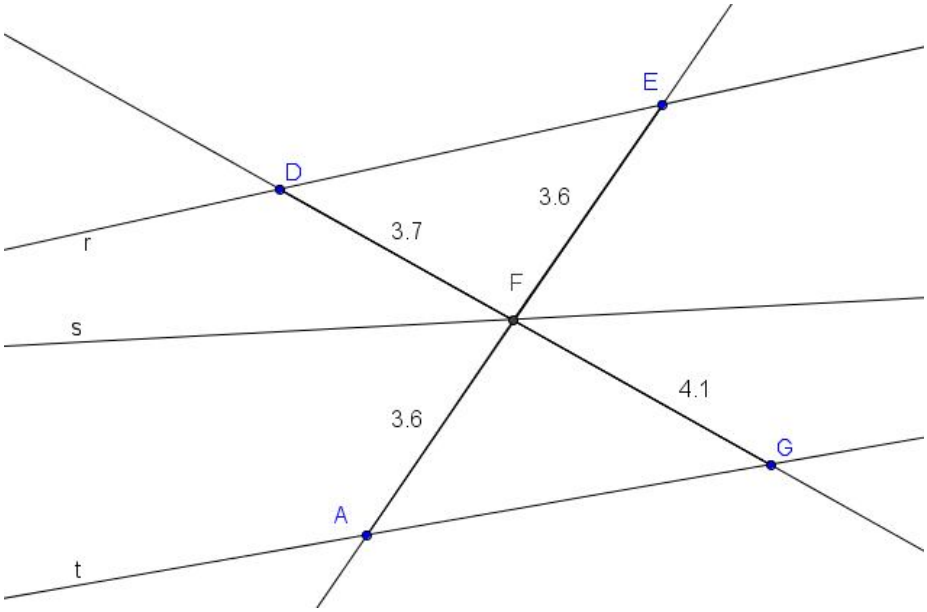


10. If you know lines t, s and r are parallel, find the length of $|AB|$. Explain your answer.



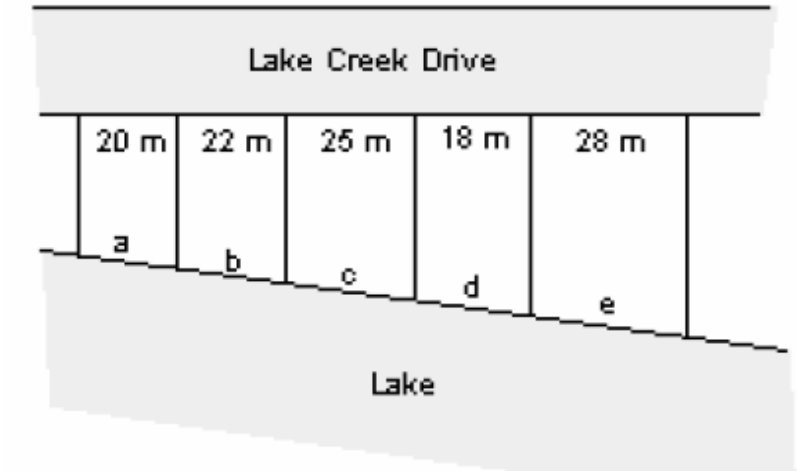
Challenge

11. Given that the distances $|AF|$ and $|FE|$ are equal, why are the distances $|DF|$ and $|FG|$ not equal?



12.

In Lake Creek, the lots on which houses are to be built are laid out as shown. What is the lake frontage for each of the five lots if the total frontage is 135.6 meters?



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