T	rian	e Bisectors in a gle t Worksheet				
In	this ac	tivity, you will explore:				
	• T	he angle bisector of an angle				
	• The proportional relationship that occurs when an angle bisector in a triangle the opposite side into two parts					
1.	Open	Open the <i>PTE-Geom_AngleBis_EN.tns</i> file on your TI-Nspire™ math and sci				
	learni	ng handheld.				
	• U	se this document to record your answ	ers.			
Pr	oblen	n 1 – The Angle Bisector Theore	em			
2.	What ∠CA	were the measures of the two angles X)?	created by your a	ingle bisector (∠BAX and		
3.	3. Record some of the measurements from page 1.3 after moving point X:					
		Distance from $X$ to side $\overrightarrow{AB}$	Distance fro	om $X$ to side $\overrightarrow{AC}$		
4.	Comp	plete the conjecture:				
Ar	ıy poin	t on the angle bisector of an angle is		_ from the sides of the angle.		

## Problem 2 – One Angle Bisector in a Triangle

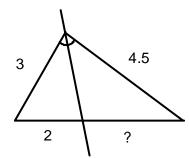
5. Record some of the measurements from page 2.2 after moving a vertex of  $\triangle ABC$ :

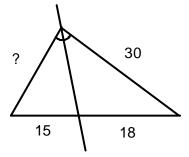
AB	AC	BD	CD

**6.** Identify a set of ratios that are equal to each other. Drag a vertex of the triangle to confirm your conjecture.

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7. **Apply The Math:** Use your proportion to find the missing values for each figure below:





## Problem 3 – One Angle Bisector and the Incenter of a Triangle (optional)

8. What was the value of the ratio  $\frac{DI}{DG}$ ? What was the value of the ratio  $\frac{DE + DF}{P}$ ?

9. What happens to these values when a vertex of the triangle is dragged?

10. Show the hidden angle bisector of  $\angle E$  or  $\angle F$ . Confirm that your conjecture is true for this other bisector. Drag a vertex of the triangle, and observe the results.

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