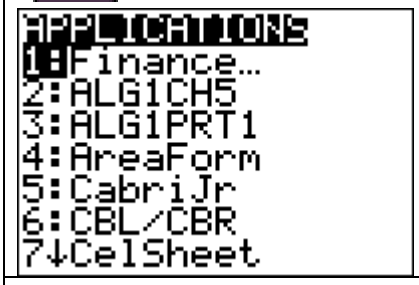
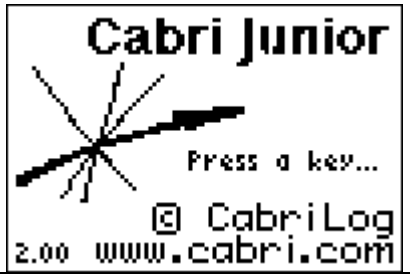
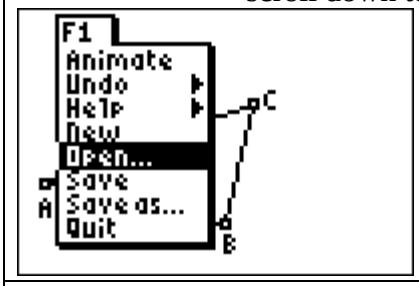
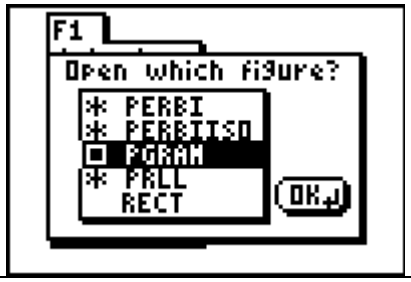
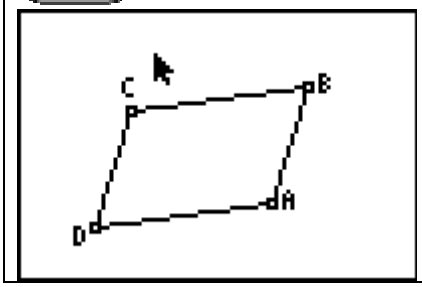
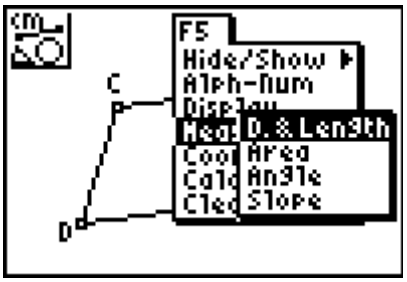
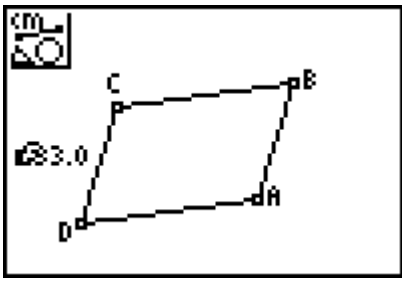
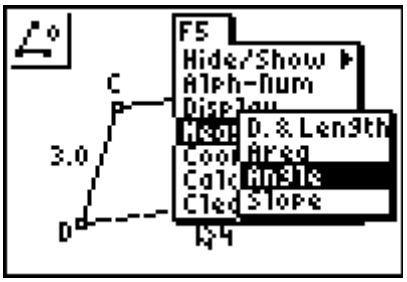
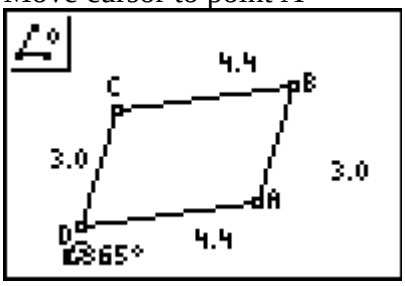
Student Worksheet for G.G. 38

After turning on your handheld press APPS  	Select CabriJr. 5 
Y=  scroll down to Open  	ENTER scroll to PGRAM 
ENTER  	You will investigate the measures of sides, angles diagonals and segments of diagonals. An example of measuring length of a segment and measure of angle appears on the next page.

Measure the length of CD GRAPH scroll down to measure D.&length  ENTER	Move cursor to side CD, it will become "active" ENTER  Drag measure to a convenient location All sides can be measured in this way.
Measure $\angle CDA$ GRAPH scroll down to measure Angle.  ENTER	Move cursor to point C ENTER Move cursor to point D ENTER Move cursor to point A ENTER  Drag measure to a convenient location. All angles can be measured this way.
You now have the tools necessary to answer questions regarding the sides, angles and diagonals of a parallelogram.	

Exploring the relationship between the sides of a parallelogram:

1) Find the lengths of the sides of parallelogram ABCD. Select, grab and drag vertex A. What is changing? _____
   What remains the same? _____
2) Find the lengths of the sides of parallelogram ABCD. Select, grab and drag vertex B. What is changing? _____
   What remains the same? _____
3) Find the lengths of the sides of parallelogram ABCD. Select, grab and drag vertex C. What is changing? _____
   What remains the same? _____
4) Find the lengths of the sides of parallelogram ABCD. Select, grab and drag vertex D. What is changing? _____
   What remains the same? _____
5) Find the lengths of the sides of parallelogram ABCD. Select, grab and drag side AB. What is changing? _____
   What remains the same? _____
6) Find the lengths of the sides of parallelogram ABCD. Select, grab and drag side BC. What is changing? _____
   What remains the same? _____
7) Find the lengths of the sides of parallelogram ABCD. Select, grab and drag side CD. What is changing? _____
   What remains the same? _____
8) Find the lengths of the sides of parallelogram ABCD. Select, grab and drag side DA. What is changing? _____
   What remains the same? _____
9) What seems to be true about AB and DC no matter what part of the figure is dragged? _____
10) What seems to be true about CB and DA no matter what part of the figure is dragged? _____
11) Write a statement about the opposite sides of a parallelogram.
   _____

Exploring the relationship between the angles of a parallelogram:

12) Find the measures of the angles of parallelogram ABCD. Select, grab and drag vertex A. What is changing? _____
What remains the same? _____

13) Find the measures of the angles of parallelogram ABCD. Select, grab and drag vertex B. What is changing? _____
What remains the same? _____

14) Find the measures of the angles of parallelogram ABCD. Select, grab and drag vertex C. What is changing? _____
What remains the same? _____

15) Find the measures of the angles of parallelogram ABCD. Select, grab and drag vertex D. What is changing? _____
What remains the same? _____

16) Find the measures of the angles of parallelogram ABCD. Select, grab and drag side AB. What is changing? _____
What remains the same? _____

17) Find the measures of the angles of parallelogram ABCD. Select, grab and drag side BC. What is changing? _____
What remains the same? _____

18) Find the measures of the angles of parallelogram ABCD. Select, grab and drag side CD. What is changing? _____
What remains the same? _____

19) Find the measures of the angles of parallelogram ABCD. Select, grab and drag side DA. What is changing? _____
What remains the same? _____

20) What seems to be true about $\angle ABC$ and $\angle ADC$ no matter what part of the figure is dragged? _____

21) What seems to be true about $\angle BCD$ and $\angle BAD$ no matter what part of the figure is dragged?

22) Write a statement about the opposite angles of a parallelogram.

_____

Find the following sums:

23) m $\angle ABC$ +m $\angle BCD$ = _____

24) m $\angle ABC$ +m $\angle BAD$ = _____

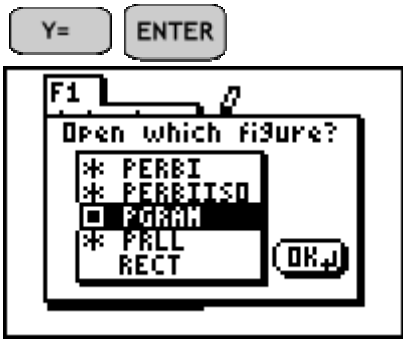
25) m $\angle BCD$ +m $\angle ADC$ = _____

26) m $\angle ADC$ +m $\angle BAD$ = _____

27) Write a statement about the consecutive angles of a parallelogram.

_____

Investigation of the diagonals:

<table>
<tr>
<td>Reopen PGRAM
 
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 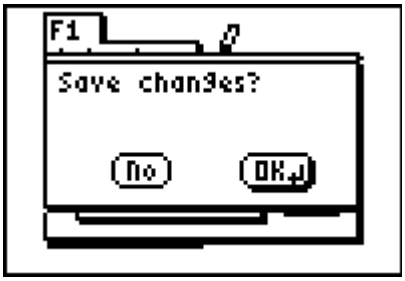

 
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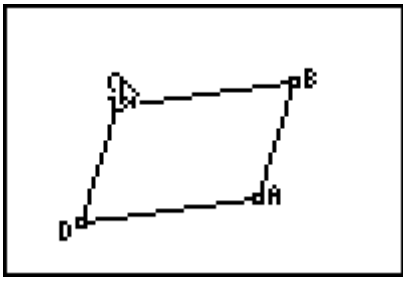
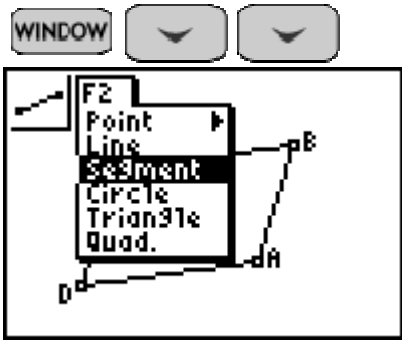
<td> 
</td>
<td>Draw segment AC and segment BD, the diagonals.
 
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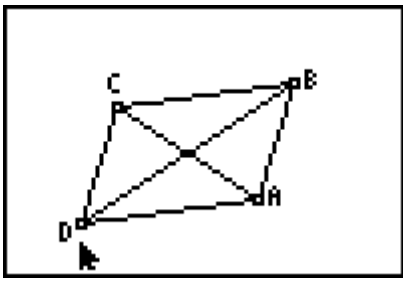
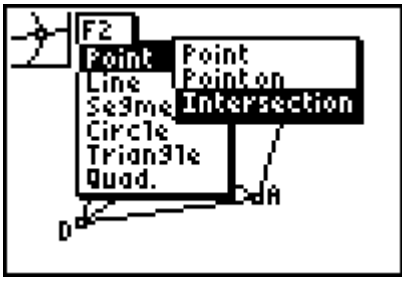
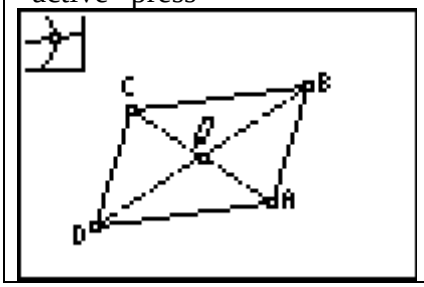
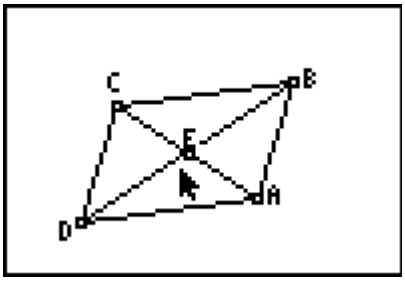
	Locate the point of intersection of the diagonals and label it E. WINDOW scroll to intersection  ENTER
Move the cursor towards the intersection of the diagonals when both diagonals become "active" press ENTER 	Label the point E. 

Measure the following segments: BE, ED

28) Drag any side or vertex. What appears to be true about BE and ED?

_____

Measure the following segments: AE, EC

29) Drag any side or vertex. What appears to be true about BE and ED?

_____

30) From your investigations in questions 28 and 29 write a statement about the diagonals of a parallelogram.

_____

_____