# Bank Shots

- I can find relationships between the length and width of a pool table
- I can use ratios to solve problems and make predictions

1) **Play with** the Explore sim.  Be prepared to **explain** 2-3 things about the Proportion sim that you think are important for a classmate to know.

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2) Below you can see some screenshots from the sim using the pool table along with information about each one.



| Length | 5 |
|---|---|
| Width | 5 |
| # of Line Segments | 1 |



| Length | 3 |
|---|---|
| Width | 2 |
| # of Line Segments | 4 |



| Length | 3 |
|---|---|
| Width | 5 |
| # of Line Segments | 7 |

3) **Experiment** with different lengths and widths on the pool table sim to see how many segments the pool ball makes.
   a) Look for patterns and be prepared to share some ideas.

| Length | |
|---|---|
| Width | |
| # of Line Segments | |

| Length | |
|---|---|
| Width | |
| # of Line Segments | |

| Length | |
|---|---|
| Width | |
| # of Line Segments | |

| Length | |
|---|---|
| Width | |
| # of Line Segments | |

| Length | |
|---|---|
| Width | |
| # of Line Segments | |

| Length | |
|---|---|
| Width | |
| # of Line Segments | |

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4) **Looking for patterns.** Now find three different table dimensions that cause the ball to create the **same number** of line segments.

| Length | |
|---|---|
| Width | |
| # of Line Segments | |

| Length | |
|---|---|
| Width | |
| # of Line Segments | |

| Length | |
|---|---|
| Width | |
| # of Line Segments | |

**Invent your own.** Write the dimensions for a pool table that is too big for the sim, but will still have the same number of line segments as your three pool tables above.

| Length | |
|---|---|
| Width | |
| # of Line Segments | |

5) **Test your theory.** Use the "Predict' mode  **Predict** to see how well your theory works.

Keep track of your tests using the tables below.

a) First make your prediction, then test your prediction.
b) We predict that the ball will make _____ line segments.

| Length | |
|---|---|
| Width | |
| Actual Number | |

| Length | |
|---|---|
| Width | |
| Actual Number | |

| Length | |
|---|---|
| Width | |
| Actual Number | |

**Invent your own.** On graph paper, draw a pool table that is too big for the sim. Then draw the path the ball will take. Is it possible to know the number of segments will make without counting each segment? Explain.

6) **Make a rule.**  Write a rule (in words or with an equation) that lets you know that two

different table dimensions will result in the same number of line segments. _____

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_____

_____

7) **Exit Ticket**:  Fill in the blanks with the dimensions for another pool table that will create
the same number of line segments as the one listed.
   a) Length = 8; Width = 2; length = ____ width = ____
   b) Length = 11; Width = 11; length = ____ width = ____
   c) Length = 24; Width = 12; length = ____ width = ____
   d) Draw two different pool tables on graph paper below so that a ball would make the
      same number of segments. On the lines below, explain how do you know these will
      be the same.

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