

Perimeter and Area

You can use a spreadsheet to explore perimeter and area of parallelograms. How many different parallelograms with whole number measurements have an area of 24 square units?

Create a spreadsheet with 4 columns. Column A is length. Column B is width. Column C is perimeter. Column D is area. Since perimeter is the distance around the shape, the formula for Column C is $2A + 2B$ ($=2*A1+2*B1$). You have learned to find area of a parallelogram by multiplying its length and width. So, the formula for column D is $A \times B$ ($=A1*B1$). You can set up the formula in the first cell of each column and then copy a paste the formula in the rest of the cells.

Choose two numbers whose product is 24. Enter these numbers in columns A and B as the length and width. Continue until you find all the remaining parallelograms.

Example:

	A	B	C	D
1	1	24	50	24
2	2	12	28	24
3				

Use the spreadsheet to answer each question.

1. What is the greatest perimeter of all the parallelograms with an area of 24 square units?
2. How many parallelograms with whole number measurements have a perimeter of 20 units? Create a spreadsheet to find the solution.
3. What is the greatest area of all the parallelograms with a perimeter of 20 units?

4. How many parallelograms with whole number measurements have an area of 48 square units?

5. What is the smallest perimeter of all the parallelograms with an area of 48 square units?

6. There is a parallelogram with a perimeter of 36 square units. The length is twice as long as the width. What is the length of the parallelogram? What is the area of the parallelogram?

7. Without using a spreadsheet, describe how you could find the number of parallelograms with whole number measurements that have an area of 32 square units.