

Supplemental Calculus

This is a collection of activities for Supplemental Calculus.

Functions and Graphs

1.1 Functions

Every square has both a perimeter p and an area A . In other words, there is a relationship between the set of perimeters of squares and the set of areas of squares. Is this relationship a function?

Exercise 1 If $p = 20$, then $A = \boxed{25}$.

Hint: What is the side length of a square with this perimeter?

Exercise 2 If $A = 36$ then $p = \boxed{24}$.

Hint: What is the side length?

Solution If the area is 36, then the side length must be 6, since $6 \times 6 = 36$. The perimeter is 4 times the side length, so the perimeter is 24.

Question 3 Every square is also a

rectangle

choice

This is the end of the activity. Really.

Manipulating Expressions

1.2 Factoring

When we factor, we break up an expression into its parts, such that when you *multiply* all the parts together, you get the expression. That is, we are decomposing the expression into its “factors” – parts with respect to multiplication.

Learning outcomes:

What does it mean to *factor*? To get a feel for this, we will try some simple number factoring problems.

Problem 4 What is the smallest factor of 45?

Which is not a factor of 54?

Multiple Choice:

- (a) 3
- (b) 5 ✓
- (c) 9