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* $\underset{\textit{choice}}{\boxed{\textit{rectangle}}}$

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:

Theorem 1. *Factoring is fun.*

Question 4 *This is a question. The answer is:* $\boxed{42}$

Example 1. *Here is an example of a list.*

- *One item.*
- *Another.*
- *This is not an item. Okay, it really is.*

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

Problem 5 *What is the smallest factor of 45?* $\boxed{3}$

Which is not a factor of 54?

Multiple Choice:

(a) 3

(b) 5 ✓

(c) 9