

## Proof Approaches Card Sort

<p>Prove that</p> $(2x - 1)(x + 3) = 2x^2 + 5x - 3$ <p>for all real <math>x</math>.</p>	<p>Prove that the interior angles of a triangle sum to <math>180^\circ</math>.</p>	<p>Prove that, for <math>n \in \mathbb{Z}</math>, if <math>3n + 2</math> is even then <math>n</math> is even.</p>
<p>Prove that <math>\sqrt{2}</math> is irrational.</p>	<p>Prove that for every positive integer <math>n</math>, where <math>3 \leq n \leq 8</math> that the positive integer <math>n^2 + 3n</math> is even.</p>	<p>Why is the inequality <math>(x + y)^4 \leq x^4 + y^4</math> not true.</p>
<p>Prove that the sum of two positive integers is positive.</p>	<p>Prove that the sum of any four consecutive integers is even.</p>	<p>A Mersenne prime is a prime number that can be written in the form <math>2^n - 1</math> for some positive integer <math>n &gt; 1</math>. Prove that the statement "For every prime number <math>p</math>, the number <math>2^p - 1</math> is a Mersenne prime" is false.</p>