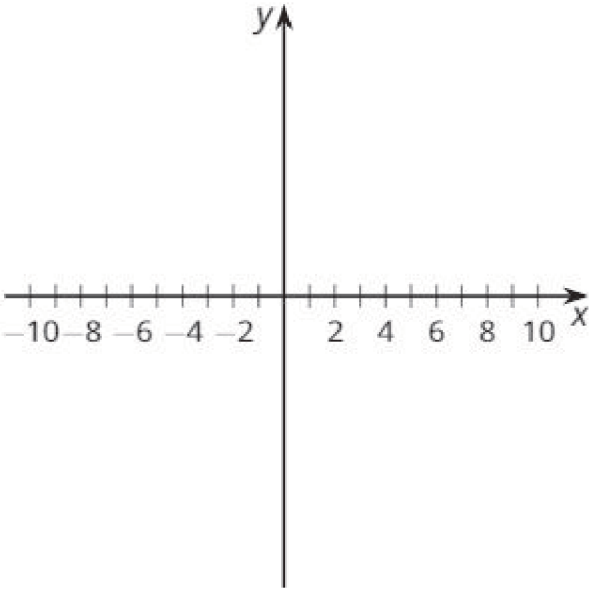
Info Gap: More Polynomials

## Problem Card 1

Sketch a graph of polynomial $f(x)$ which has a known factor of $(x-9)$.

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## Data Card 1

- The graph of $f$ has a vertical intercept at 63.
- The equation of the polynomial is $f(x) = x^3 - 3x^2 - 61x + 63$.
- The degree of the polynomial is 3.
- The polynomial has one relative minimum and one relative maximum.
- As the value of $x$ gets larger and larger in the positive direction, the value of $y$ gets larger and larger in the positive direction.

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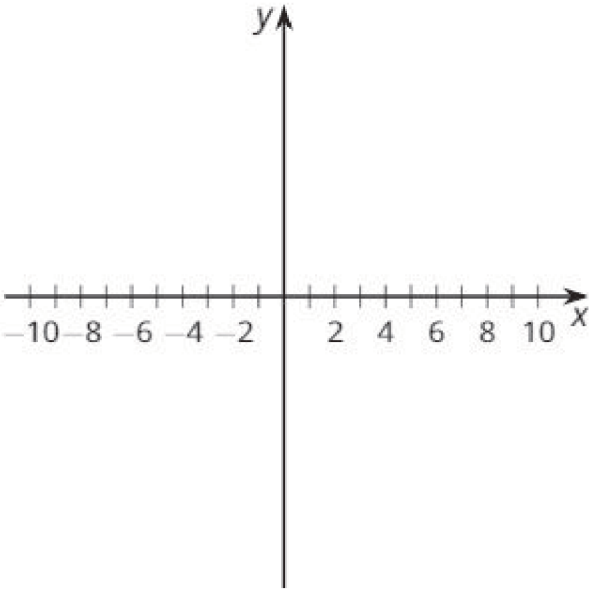
## Problem Card 2

Sketch a graph of polynomial $p(x)$ which has a known factor of $(x-6)$.

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## Data Card 2

- As the value of $x$ gets larger and larger in the negative direction, the value of $y$ gets larger and larger in the negative direction.
- The equation of the polynomial is $p(x) = x^3 - 6x^2 - 16x + 96$.
- The graph has a relative minimum between $x = 4$ and $x = 6$.
- The value of the function at $x = 1$ is 75.
- The graph crosses the horizontal axis 3 times.