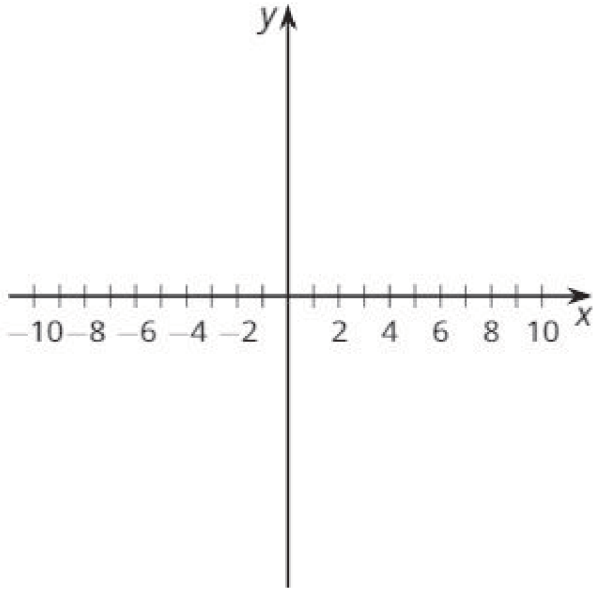


Info Gap: More Polynomials

## Problem Card 1

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



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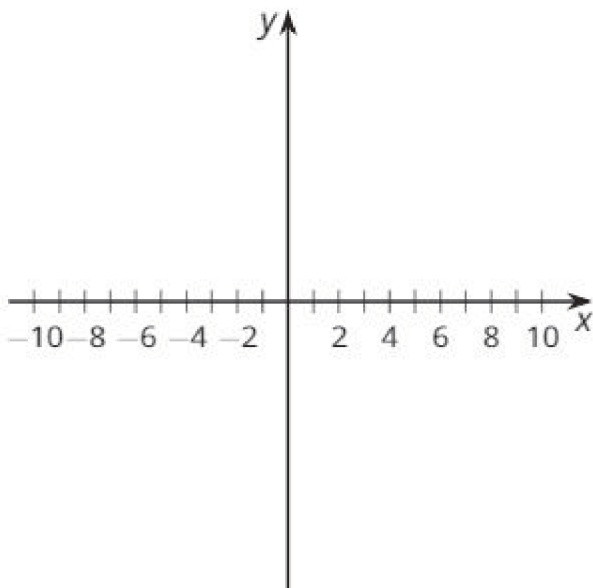
## Data Card 1

- 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.