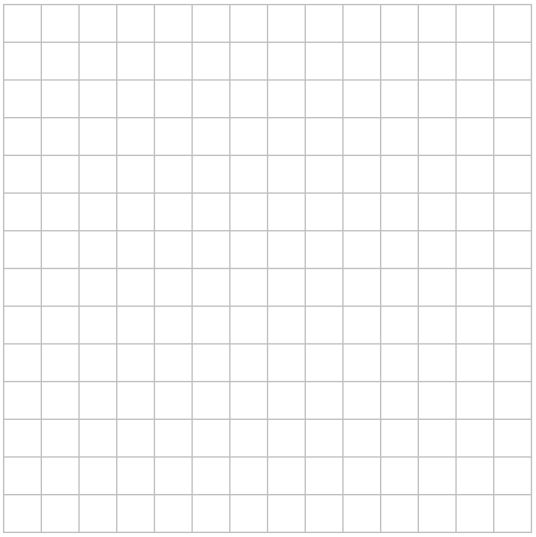
Polynomial functions

Factor the function completely. Use synthetic division to check the possible zeros.

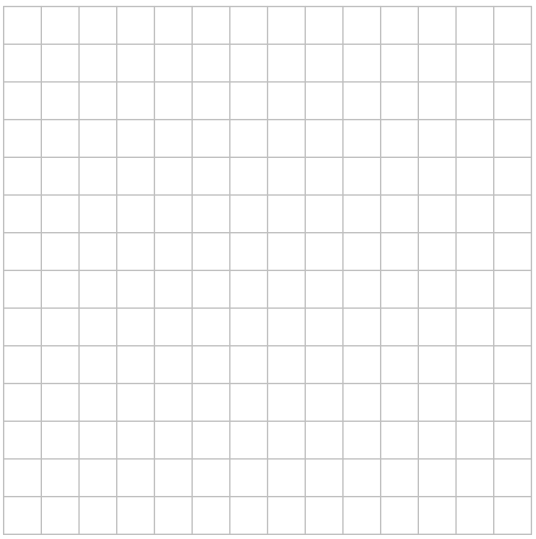
1. $g(x) = x^3 - x^2 - 4x + 4$
2. $h(x) = x^3 - x^2$
3. $j(x) = 2x^4 - 6x^3 - 56x^2 + 120x$
4. $f(x) = x^3 + 7x^2 + 12x$
5. $g(x) = x^4 - 4x^3 + 4x^2$

Sketch the graph of each polynomial function.

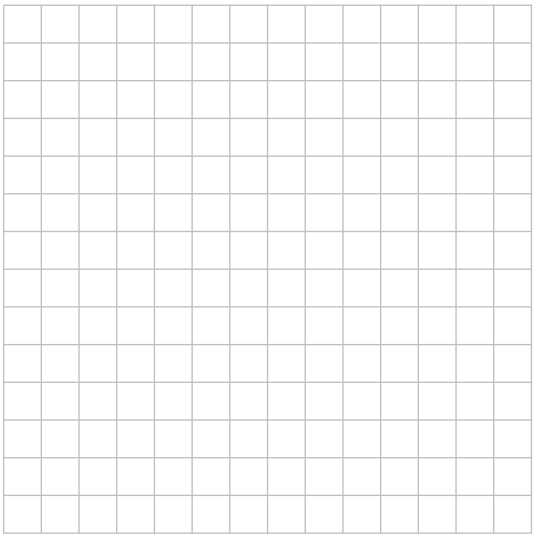
6. $P(x) = -4x^3 + 12x^2 - 8x$



7. $Q(x) = x^4 - 2x^3 - x^2 + 2x$



8. $R(x) = x^5 - x^4$



ANSWERS

1. $(x-1)(x-2)(x+2)$
2. $x^2(x-1)$
3. $2x(x-2)(x+5)(x-6)$
4. $x(x+3)(x+4)$
5. $x^2(x-2)^2$