Looking back at problems 1-3, how can you tell the degree of a polynomial function when its rule is written as a product of linear factors?

Which properties of a polynomial and its graph are shown best when the rule is written as a product of linear factors? When the rule is written in standard form?

Multiply each set of polynomials. Write them in standard form. Give the degree of the product.

$(2x-3)(4x-1)$

$8x^2-2x-12x+3$

$8x^2-14x+3$

$2(3x-7)(x+5)$

$2(3x^2+15x-7x-35)$

$2(3x^2+8x-35)$

$6x^2+16x-70$

$x(x+6)(x-2)$

$x(x^2-2x+6x-12)$

$x(x^2+4x-12)$

x^3+4x^2-12x

$(x-3)(x+4)(x-5)$

$(x-3)(x^2-x-20)$

x^3-x^2-20x

$-3x^2+3x+60$

$x^3-4x^2-17x+60$

$(3x-1)(x^2+2x-2)$

$3x^3+6x^2-6x$

$-x^2-2x+2$

$3x^3+5x^2-8x+2$

$(x-4)(x^4-3x^2+2)$

x^5-3x^3+2x

$-4x^4+12x^2-8$

$x^5-4x^4-3x^3+12x^2+2x-8$

$(x^6 - 5x^5 + 3x^4 + 7x^3 - 6x^2 + 2x - 8)(x^2 + 7x + 12)$

$x^8 - 5x^7 + 3x^6 + 7x^5 - 6x^4 + 2x^3 - 8x^2$

$7x^7 - 35x^6 + 21x^5 + 49x^4 - 42x^3 + 14x^2 - 56x$

$12x^6 - 60x^5 + 36x^4 + 84x^3 - 72x^2 + 24x - 96$

$x^8 + 2x^7 - 20x^6 - 32x^5 + 79x^4 + 44x^3 - 66x^2 - 32x - 96$

Divide f(x) by d(x) using long division. Write a summary statement in polynomial form and factored form.

$f(x) = x^2 + 5x + 6$ $d(x) = x + 2$