

Algebra 2
Long Division

Name: _____
Period: _____

Divide.

1. $(x^2 + 2x + 6) \div (x - 3)$
2. $(4x^3 + 6x^2 - 8x - 1) \div (2x + 1)$
3. $(x^2 - x - 6) \div (x - 3)$
4. $(3x^3 + 10x^2 - 14) \div (x + 3)$
5. $(5x^4 + 4x^3 + 2x^2) \div (x^2 + x + 1)$
6. $(6x^6 - 4x^5 + 8x^3 - 2x + 1) \div (x^2 + 3)$

Decide whether each binomial is a factor of the polynomial.

7. Is $x + 3$ a factor of $5x^2 - 4x + 12$?
8. Is $x - 1$ a factor of $9x^2 - 7x + 3$?
9. Is $x - 5$ a factor of $2x^3 - 10x^2 + x - 5$?
10. Is $x + 2$ a factor of $9x^3 - x^2 + x - 5$?

11. Factor completely $f(x) = x^3 + 9x^2 + 23x + 15$ if $x + 5$ is a factor

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