Name _____ Date _____ Class _____

Practice B
Dividing Polynomials

Divide by using long division.

1. $\left(x^2 - x - 6\right) \div \left(x - 3\right)$

2. $\left(2x^3 - 10x^2 + x - 5\right) \div \left(x - 5\right)$

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3. $\left(-3x^2 + 20x - 12\right) \div \left(x - 6\right)$

4. $\left(3x^3 + 9x^2 - 14\right) \div \left(x + 3\right)$

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Divide by using synthetic division.

5. $\left(3x^2 - 8x + 4\right) \div \left(x - 2\right)$

6. $\left(5x^2 - 4x + 12\right) \div \left(x + 3\right)$

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7. $\left(9x^2 - 7x + 3\right) \div \left(x - 1\right)$

8. $\left(-6x^2 + 5x - 10\right) \div \left(x + 7\right)$

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Use synthetic substitution to evaluate the polynomial for the given value.

9. $P(x) = 4x^2 - 9x + 2$ for $x = 3$

10. $P(x) = -3x^2 + 10x - 4$ for $x = -2$

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Solve.

11. The total number of dollars donated each year to a small charitable organization has followed the trend $d(t) = 2t^3 + 10t^2 + 2000t + 10{,}000$, where d is dollars and t is the number of years since 1990. The total number of donors each year has followed the trend $p(t) = t^2 + 1000$. Write an expression describing the average number of dollars per donor.

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