HW 7-4 Dividing Polynomials Name:_____ Period:_____

Given a polynomial divisor and dividend, use long division to find the quotient and remainder.

1. $(18x^3 - 3x^2 + x - 1) \div (x^2 - 4)$ 2. $(6x^4 + x^3 - 9x + 13) \div (x^2 + 8)$

3. $(x^3 + 25x^2 + 100x) \div (x + 20)$

Given a polynomial p(x), use synthetic division to divide by x - a and obtain the quotient and the (nonzero) remainder.

4. $(7x^3 - 4x^2 - 400x - 100) \div (x - 8)$ 5. $(2.5x^3 + 6x^2 - 5.5x - 10) \div (x + 1)$ 7. Given that the height of a rectangular prism is x + 2 and the volume is $x^3 - x^2 - 6x$, write an expression that represents the area of the top face of the prism.

8. Explain the error: Two students used synthetic division to divide $3x^3 - 2x - 8$ by x - 2. Determine which solution is correct. Find the error in the other solution.

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Review

Graph the function
$$f(x) = \begin{cases} (x+2)^2, & x < 0 \\ -1, & x > 0 \end{cases}$$

