Name_____Class_____ Date_____

Chapter 5 Quiz 2

Form G

Lessons *5-5* through 5-9

Do you know HOW?

Expand each binomial.

1. $(2a - 1)^4$

2. $(x + 3)^5$

Use the Rational Root Theorem to list all possible rational roots for each equation. Then find any actual rational roots.

3. $x^3 + 9x^2 + 19x - 4 = 0$

4. $2x^3 - x^2 + 10x - 5 = 0$

What are all the complex roots of the following polynomial equations?

5. $x^4 + 3x^3 - 5x^2 - 12x + 4 = 0$

6. $2x^3 + x^2 - 9x + 18 = 0$

7. Describe the transformations used to change the graph of the parent function $y = x^3$ to the graph of $y = \frac{1}{6}(x + 4)^3$.

Find a polynomial function whose graph passes through each set of points.

8. (0, 3), (−1, 0), (1, 10) and (−2, −35)

9. (−4, 215), (0, −1), (2, −1), and (3, −16)

Do you UNDERSTAND?

10. The potential energy of a spring varies directly as the square of the stretched length *l*. The formula is $PE = \frac{1}{2}kl^2$, where *k* is the spring constant. When you stretch a spring to 12 ft, it has 483 ft-lb of potential energy. What is the spring constant for this spring? How much potential energy is created by stretching a 7 ft section?

11. In the expansion of $(4r + s)^7$, one of the terms contains r^4s^3. What is the coefficient of this term?

12. Reasoning For a set of data, you make three models. R^2 for the quadratic model is 0.825. R^2 for the cubic model is 0.996. R^2 for the quartic model is 0.934. Explain why the cubic model may not be the best for predicting outside the data.