Algebra 2 Ch. 5 Review
Quiz 5.7-5.8
Tomorrow: test Ch. 5

5-1 Operations with Polynomials

Simplify. Assume that no variable equals 0.

11. $\frac{14x^4y}{2x^3y^5}$

$\frac{7xxxxy}{xxxyyyyy}$

$7\,\frac{x}{y^4}$ $\quad x^{-4}y$

* Before Christmas

$(m + p)(m^2 - 2mp + p^2)$ *

5-2 Dividing Polynomials

Simplify.

17. $\dfrac{12x^4y^5 + 8x^3y^7 - 16x^2y^6}{(4xy^5)}$

$\dfrac{12x^4y^5}{4xy^5} + \dfrac{8x^3y^7}{4xy^5} - \dfrac{16x^2y^6}{4xy^5}$

$3x^3 + 2x^2y^2 - 4xy$

19. $(a^4 + 5a^3 + 2a^2 - 6a + 4)(3a + 2)^{-1}$

$3a + 2$

*

*

5-3 Polynomial Functions

State the degree and leading coefficient of each polynomial in one variable. If it is not a polynomial in one variable, explain why.

22. $5x^6 - 3x^4 + x^3 - 9x^2 + 1$

Find $p(-2)$ and $p(x + h)$ for each function.

25. $p(x) = x^2 + 2x - 3$

5-4 Analyzing Graphs of Polynomial Functions

Complete each of the following.

a. Graph each function by making a table of values.

b. Determine the consecutive integer values of x between which each real zero is located.

c. Estimate the x-coordinates at which the relative maxima and minima occur.

28. $h(x) = x^3 - 4x^2 - 7x + 10$

$x = -2$

$x = 1$

$x = 5$

$4 < x < 5$

Use technology

Show ordered pairs on your graph

Make sure that you answer the question

Rmax $x = -1$

Rmin $x = 3$

5-5 Solving Polynomial Equations

Factor completely. If the polynomial is not factorable, write *prime.*

34. $a^4 - 16$

36. $54x^3y - 16y^4$

Solve each equation.

38. $x^3 + 2x^2 - 35x = 0$

5-6 The Remainder and Factor Theorems

Use synthetic substitution to find $f(-2)$ and $f(4)$ for each function.

41. $f(x) = x^2 - 3$

Given a polynomial and one of its factors, find the remaining factors of the polynomial.

45. $3x^3 + 20x^2 + 23x - 10;\ x + 5$

5-7 Roots and Zeros

State the possible number of positive real zeros, negative real zeros, and imaginary zeros of each function.

48. $f(x) = -2x^3 + 11x^2 - 3x + 2$

⊕ 3, 1

⊖ —

+	−	imag	total
3	0	−	3
1	0	2	3

5-8 Rational Zero Theorem

Find all of the zeros of each function.

53. $f(x) = x^3 + 4x^2 + 3x - 2$

$x = -2$

$x = -1 + \sqrt{2}$

$x = -1 - \sqrt{2}$

(+) 1

(−) 2, 0

$\pm 1, 2$

$x^2 + 2x - 1$

-2	1	4	3	-2
	↓	-2	-4	2
	1	2	-1	0

$x = \frac{-2 \pm \sqrt{4 - 4 \cdot 1 \cdot -1}}{2}$

$x = \frac{-2 \pm \sqrt{8}}{2}$

8 → 4, 2; 4 → 2, 2

$x = \frac{-2 \pm 2\sqrt{2}}{2}$

$= -\frac{2}{2} \pm \frac{2\sqrt{2}}{2}$

$-1 \pm \sqrt{2}$

$x^3 - 5x^2 + 4x - 20 = 0$

$x^2 + 4$
$x - 5$
$-5x^2 \quad -20$
$x^3 \quad 4x$

$(x-5)(x^2+4)$

$(x-5)(x-2i)(x+2i) = 0$

$x-2i$
$x+2i$
$2ix \quad -4i^2$
$x^2 - 2ix$
$x^2 + 4$

$x-5=0 \quad x-2i=0 \quad x+2i=0$

$x=5 \quad x=2i \quad x=-2i$