Name: Key
Algebra II – Test 3 review
11/21/2016

1)
a) With radicals, we do not want a ___√___ in the ___1___, and we do not want a ___1___ in the ___√___.

b) When multiplying with the same ___base___, you keep the base and ___add___ the ___exponent___.

c) In the radical $\sqrt[4]{\ }$, 4 is the ___index___. We say it is a ___4___ for ___1___ deal.

2) Simplify the following expressions. Leave your answers in exponent form with positive exponents.

a) $(4^3x^3y^2 * x^8)^4$ $\quad x^{11}$ $\quad 4^{12}x^{44}y^8$

b) $4x^{-9}y * 3^{-2}x^7y^{10}$ $\quad \frac{1}{9}$ $\quad \frac{4y^{11}}{9x^2}$

c) $\left(\frac{3^3}{3^{10}}\right)^{12}$ $\quad \frac{1}{3^7}$ $\quad \frac{1}{3^{84}}$

d) $\frac{20x^8y^3}{15x^3y^8}$ $\quad \frac{4x^5}{3y^5}$

3) Simplify each polynomial expression.

a) $4m^3 + 7m^4 - 2 + 2m^3 - 2m^2 + 6m^4$
$13m^4 + 6m^3 - 2m^2 - 2$

b) $(-x^2 + 9xy - 2y) + (+y + 2x^2 + 14xy)$
$-3x^2 - 5xy - y$

c) $5x + 10y + 7y - 12x$
$-7x + 17y$

d) $-2x + 11 + 10x$
$8x + 11$

4) Classify the following polynomials by their degree and number of terms.

a) $x^2 + 3x - 2$ quadratic trinomial

b) 8^2 constant monomial.

c) $7 + x$ linear binomial

d) $x^3 + 6^4x$ Cubic binomial.

5) Rationalize/simplify the following radicals.

a) $\sqrt{\frac{81}{x^4}}$ $3\cdot3\cdot3\cdot3$ $\frac{3\cdot3}{x\cdot x} = \left(\frac{9}{x^2}\right)$

b) $\frac{1}{\sqrt{2}}\sqrt{2}\cdot2$ $\frac{\sqrt{2}}{2}$

c) $\frac{2}{\sqrt[3]{x^2}}\sqrt[3]{x}$ $\frac{2\sqrt[3]{x}}{x}$

d) $\sqrt[3]{\frac{1}{2}}\cdot2\cdot2$ $\left(\frac{1}{2}\sqrt[3]{4}\right)$

6) Fill in the missing number to make the equation true.

a) $81^{\frac{1}{2}} = 9$ $\sqrt{81} = 9^{(1)} = 1$

b) $16^{\frac{5}{4}} = 32$ $\sqrt[4]{16} = 2^{(5)} = 32$

7) Simplify the following radicals.

a) $\sqrt[4]{x^7y^{10}}$ $xy^2\sqrt[4]{x^3y^2}$

b) $\sqrt[3]{81x^7y^{11}}$ $3x^2y^3\sqrt[3]{3xy^2}$

c) $\sqrt{54x^4y^3x^2y^2}$ $9\ 6\ x6\ y5$ $3\ 3\ 2\ 3$ $\left(3x^3y^2\sqrt{6y}\right)$

d) $(64x^{20}y^7)^{\frac{1}{6}}$ $8\ 8$ $2\cdot2\cdot2\cdot2\cdot2\cdot2$ $2x^3y\sqrt[6]{x^2y}$

8) Put the following polynomials in standard form and identify the leading coefficient.

a) $7x^3 + x - 5x^6$ $-5x^6 + 7x^3 + x$ LC: -5

b) $5x^2 - x^5 + 8 - 3x^3 + 2x$ $-x^5 - 3x^3 + 5x^2 + 2x + 8$ LC: -1

9) Multiply the following polynomials.

a) $(x-3)(x^2+5x-9)$ $x^3+2x^2-24x+27$

b) $(2x+1)(3x^3-4x+7)$ $6x^4+3x^3-8x^2+10x+7$

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

d) $(2x^2+5)(1-x)$ $-2x^3+2x^2-5x+5$

	x^2	$5x$	-9
x	x^3	$5x^2$	$-9x$
-3	$-3x^2$	$-15x$	27

	$3x^3$	$-4x$	$+7$
$2x$	$6x^4$	$-8x^2$	$+14x$
$+1$	$3x^3$	$-4x$	7

	1	$-x$
$2x^2$	$2x^2$	$-2x^3$
5	5	$-5x$