Name: KEY Date: _____ Period: _____

Unit 1 Test Review

1. Classify each polynomial according to degree and number of terms.

$7p^4$	$4x^3y^2+6x^2y-2xy$	$-5xy^2-2x^5y$
quartic monomial	quintic trinomial	6th degree binomial

2. Write each polynomial in standard form and then name it based on the degree and the number of terms.

$-9x+6x^2$	$3y-4-y^3$	$7-11v$
$6x^2-9x$ quadratic binomial	$-y^3+3y-4$ y^3-3y+4 cubic trinomial	$-11v+7$ $11v-7$ linear binomial

3. Add/subtract the polynomials, and then classify the answer according to degree and number of terms.

$(4x^2+6x+7)+(2x^2-9x+1)$	$(2x^3+5x-3x)+(x^3+8x^2+11)$
$6x^2-3x+8$ quadratic trinomial	$x^3+8x^2+2x-11$ cubic polynomial w/ 4 terms
$(12m^2+4)+(8m^2+5)$	$(8d^4-9d)+(2d^4+d)+(7d+6)$
$20m^2+9$ quadratic binomial	$6d^4-3d+6$ quartic trinomial

4. Simplify each product. Use the distributive property.

$-4y^2(5y^4-3y^2+2)$	$2x^2y(5x^2y^2+6x^3y-2x+y)$
$-20y^6+12y^4-8y^2$	$10x^4y^3+12x^5y^2-4x^3y^2$

5. Multiply each of the following. Simplify completely, and write each answer in standard form.

(3x-5)(2x+7)

$6x^2+21x-10x-35$

$6x^2+11x-35$

(5m+2)(8m-1)

$40m^2-5m+16m-2$

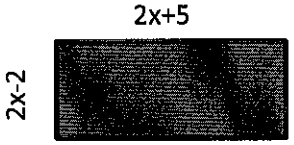
$40m^2+11m-2$

Find the area.

$(3x+1)(2x+5)$

$6x^2+15x+2x+5$

$6x^2+17x+5$



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

$4x^2+10x-4x-10$

$4x^2+6x-10$

$(2x-3)(4x^2+x-6)$

$2x(4x^2+x-6)-3(4x^2+x-6)$

$8x^3+2x^2-12x-12x^2-3x+18$

$8x^3-10x^2-15x+18$

$(6x-8)(2x^2+3x+7)$

$6x(2x^2+3x+7)-8(2x^2+3x+7)$

$12x^3+18x^2+42x-16x^2-24x-56$

$12x^3+2x^2+18x-56$

$(x+3)^2$

$(x+3)(x+3)$

$x^2+3x+3x+9$

x^2+6x+9

$(r-12)^2$

$(r-12)(r-12)$

$r^2-12r-12r+144$

$r^2-24r+144$

$(x+9)(x-9)$

$x^2-9x+9x-81$

x^2-81

$(3x+7)(3x-7)$

$9x^2-21x+21x-49$

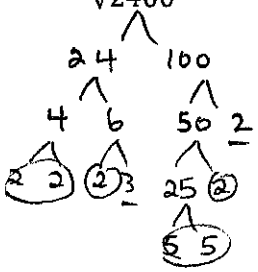
$9x^2-49$

6. Identify the number set(s) to which each number belongs.

$\sqrt{72}$	irrational
$\frac{25}{4}$	rational
$-\frac{25}{5}$	rational
$\frac{5}{25}$	rational
$\frac{34}{2}$	rational
-6	rational
0	rational

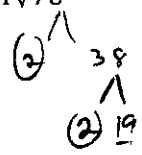
7. Simplify each of the following completely.

$\sqrt{2400}$



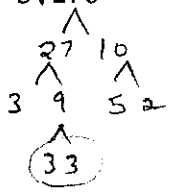
$20\sqrt{6}$

$4\sqrt{76}$



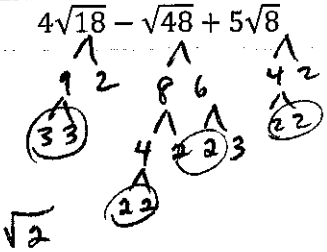
$8\sqrt{19}$

$3\sqrt{270}$



$9\sqrt{30}$

$4\sqrt{18} - \sqrt{48} + 5\sqrt{8}$

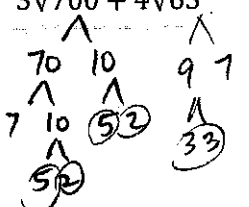


$12\sqrt{2}$

$12\sqrt{2} - 4\sqrt{3} + 10\sqrt{2}$

$22\sqrt{2} - 4\sqrt{3}$

$3\sqrt{700} + 4\sqrt{63}$



$30\sqrt{7} + 12\sqrt{7}$

$42\sqrt{7}$

$\sqrt{\frac{54}{36}}$ $\frac{\sqrt{54}}{\sqrt{36}}$

$\frac{3\sqrt{6}}{6} = \frac{\sqrt{6}}{2}$

$-4\sqrt{6}(2\sqrt{3}-5\sqrt{10})$

$-8\sqrt{18}+20\sqrt{60}$

$-24\sqrt{2}+40\sqrt{15}$

$\sqrt{\frac{98x^2}{27x^2}}$ $\frac{\sqrt{98x^2}}{\sqrt{27x^2}}$

$\frac{7x\sqrt{2}}{3x\sqrt{3}} \cdot \frac{\sqrt{3}}{\sqrt{3}} = \frac{7\sqrt{6}}{9}$

$\frac{-3}{2\sqrt{3}-\sqrt{7}} \cdot \frac{2\sqrt{3}+\sqrt{7}}{2\sqrt{3}+\sqrt{7}}$

$\frac{-6\sqrt{3}-3\sqrt{7}}{12+2\sqrt{21}-2\sqrt{21}-7}$

$\frac{-6\sqrt{3}-3\sqrt{7}}{5}$

8. Use dimensional analysis to solve each problem below. Show the steps.

One milliliter of food coloring makes enough blue frosting for 10 cupcakes. If you had 2 cups of food coloring, how many blue cupcakes could you frost?

$\frac{1\ mL}{10\ cupcakes} \cdot \frac{1\ cup}{236.59\ mL} = \frac{1\ cup}{2365.9\ cupcakes} \times 2 = \frac{2\ cups}{4731.8\ cupcakes}$

Your car is leaking oil from it's engine at 2 fluid ounces every 6 hours. How many quarts of oil will it leak in one week?

$\frac{2\ fl\ oz}{6\ hrs} \cdot \frac{1\ cup}{8\ fl\ oz} \cdot \frac{1\ qt}{4\ cup} \cdot \frac{24\ hrs}{1\ day} \cdot \frac{7\ day}{1\ wk} = \frac{336\ qt}{192\ wk} = \frac{1.75\ qt}{1\ wk}$

If a month is 4 weeks long and your car can hold 8 quarts of oil at one time, will you have to add more oil at the end of the month? Why or why not?

$\frac{1.75\ qt}{wk} \times 4 = \frac{7\ qt}{4\ wks\ (1\ mos.)}$ NO

A dripping shower leaks 1 fluid ounce of water every 20 minutes. How many gallons will it leak in 1 week?

$\frac{1\ fl\ oz}{20\ min} \cdot \frac{1\ cup}{8\ fl\ oz} \cdot \frac{1\ qt}{4\ cup} \cdot \frac{1\ gal}{4\ qt} \cdot \frac{60\ min}{1\ hr} \cdot \frac{24\ hr}{1\ day} \cdot \frac{7\ day}{1\ wk} = \frac{10080}{2560}$

$3.9375\ gal/wk$

Marching bands march 8 steps each 5 yards and they march 50 steps per minute. If the band marches continuously, how long will it take to march 1 mile?

$\frac{8\ steps}{5\ yd} \cdot \frac{1760\ yd}{1\ mi} = \frac{14,080}{5} = 2816\ steps/mi \div 50 = 56.32\ min.$