Prep Algebra 1 Name KEY

Chapter 9 Review (circle final answer)

Date _____ Period ____

Name each polynomial by degree (1st word) and number of terms (2nd word).

1) $10x + 6$ — LINEAR BINOMIAL

2) $10x^3 - 10$ — CUBIC BINOMIAL

3) $1 - 4k^2 - 4k$ — QUADRATIC TRINOMIAL

4) -1 — CONSTANT MONOMIAL

Simplify each sum. — Combine Like Terms; AND order H → L exponent

5) $(-3x^2 + 2x^4 - 6x^3) + (x^2 + 7x^3 + 6x^4)$

$8x^4 + x^3 - 2x^2$

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

$-2x - 4$

Simplify each difference. **Step 1 - rewrite as an adition problem.** → THEN ADD.

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

$-6x^2 - x^3 + 6x \quad -8x^3 + 6 - 6x^2$

$-9x^3 - 12x^2 + 6x + 6$

8) $(6x^4 - x - x^2) - (-x - 2x^4 + 8x^2)$

$6x^4 - x^0 - x^2 + x^0 + 2x^4 - 8x^2$

$8x^4 - 9x^2$

Find each product. Remember to write answers in standard form (high to low exponents with the constant last.)

9) $4(x^2 - 5x + 2)$

$4x^2 - 20x + 8$

10) $2x(x^2 - 3x + 4)$

$2x^3 - 6x^2 + 8x$

11) $(3x + 4)(3x - 4)$

$9x^2 - 12x + 12x - 16 =$

$9x^2 - 16$

12) $(5x - 5)(x + 4)$

$5x^2 + 20x - 5x - 20 =$

$5x^2 + 15x - 20$

13) $(x - 2)(x - 3)$

$x^2 - 3x - 2x + 6 =$ $x^2 - 5x + 6$

Factor the common factor out of each expression.

14) $\frac{-8x^4}{-2} + \frac{10x^2}{-2} - \frac{8}{-2} =$

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

15) $\frac{3x^3}{3x} + \frac{21x^2}{3x} + \frac{27x}{3x} =$

$3x(x^2 + 7x + 9)$

Factor. Remember to mentally multiply to check.

16) $x^2 + 2x - 15$

1 15
3 5

$(x+5)(x-3)$

or $(x-3)(x+5)$

17) $x^2 + x - 90$

1 90
2 45
3 30
5 18
6 15
9 10

$(x+10)(x-9)$

or $(x-9)(x+10)$

18) $x^2 - 10x + 25$

1 25
5 5

$(x-5)(x-5)$

19) $x^2 - 81$

1 81
3 27
9 9

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

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

20) $x^2 + 11x + 28$

1 28
2 14
4 7

$(x+4)(x+7)$

or $(x+7)(x+4)$

21) $x^2 - 17x + 70$

1 70
2 35
5 14
7 10

$(x-7)(x-10)$

or $(x-10)(x-7)$

Solve each equation by factoring. Remember to use your calculator to check in the original equation!

22) $x^2 + 8x + 15 = 0$

1 15
3 5

$(x+3)(x+5) = 0$

$x+3=0$ $\quad -3 \quad -3$

$x = -3$

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

$x = -5$

C: $(-3)^2 + 8(-3) + 15 = 0$

$0 = 0$ ✓

C: $(-5)^2 + 8(-3) + 15 = 0$

$0 = 0$ ✓

23) $x^2 - 10x + 24 = 0$

1 24
2 12
3 8
4 6

$(x-4)(x-6) = 0$

$x-4=0$ $\quad +4 \quad +4$

$x = 4$

$x-6=0$ $\quad +6 \quad +6$

$x = 6$

C: $(4)^2 - 10(4) + 24 = 0$

$0 = 0$ ✓

C: $(6)^2 - 10(6) + 24 = 0$

$0 = 0$ ✓