Name Key Date _____ Hour _____

Algebra 1 Factoring Quiz Review 8.1-8.4

Write the prime factorization of each of the following.

1) 155

$31 \cdot 5$

2) 250

25 10

5 5 5 2

$2 \cdot 5^3$

3) 84

4 21

2 2 3 7

$2^2 \cdot 3 \cdot 7$

Find the GCF of each pair of monomials.

4) $15x^4$ *and* $35x^2$

$5x^2$

5) $27y^3z$ *and* $45x^2y$

$9y$

6) $-8d^3$ *and* $14d^4m$

$+2d^3$

Factor

7) $10y^2 + 12y^3$

$2y^2(5 + 6y)$

8) $-12t^5 + 6t$

$6t(-2t^4 + 1)$

9) $6x^4 + 15x^3 + 3x^2$

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

Factor out the common binomial factor in each expression.

10) $4d(d+2) + 9(d+2)$

$(d+2)(4d+9)$

11) $12(x-5) + 7x(x-5)$

$(x-5)(12+7x)$

Factor each polynomial by GROUPING.

12) $n^3 + 3n^2 + 4n + 12$

$n^2(n+3) + 4(n+3)$

$(n+3)(n^2+4)$

13) $2x^3 + 5x^2 + 2x + 5$

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

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

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Factor each trinomial.

14) $x^2 + 7x + 10$

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

15) $x^2 - 9x + 18$

$(x-6)(x-3)$

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

$(x-4)(x-1)$

17) $x^2 - 9x + 20$

$(x-5)(x-4)$

18) $x^2 - 7x - 60$

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

19) $2x^2 - 22x + 36$

$2(x^2-11x+18)$

$2(x-9)(x-2)$

20) $5x^2 - 25x + 20$

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

$5(x-4)(x-1)$

21) $9x^2 + 81x + 72$

$9(x^2+9x+8)$

$9(x+1)(x+8)$

22) $6x^2 - 23x + 20$

$6 \cdot 20 = 120$

$\# + \# = -23$

$-120 + -1 = -121$ No

$-2 + -60 = -62$ No

$-3 + -40 = -43$ No

$-4 + -30 = -34$ No

$-5 + -24 = -29$ No

$-6 + -20 = -26$ No

$-8 + -15 = -23$ Yes

$(x - \frac{8}{6})(x - \frac{15}{6})$

$(x - \frac{4}{3})(x - \frac{5}{2})$

$(3x-4)(2x-5)$

23) $4x^2 + 24x + 27$

$4(27) = 108$

$\# + \# = 27$

$1 + 108 = 109$ No

$2 + 54 = 56$ No

$3 + 36 = 39$ No

$4 + 26 = 30$ No

$6 + 18 = 24$ Yes!

$(x + \frac{6}{4})(x + \frac{18}{4})$

$(x + \frac{3}{2})(x + \frac{9}{2})$

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