Math 65, HW 15 Section 6.2 Name: _____

Concept and Vocabulary Check:

1. To factor $x^2 - 12x + 20$, we must find two integers whose product is _____ and whose sum is _____.

2. A polynomial is factored _____ when it is written as a product of prime polynomials.

Practice Exercises:

In exercises 3 - 75 odd, factor each trinomial completely or state that the trinomial is prime. Check 5, 9, 21, 33, 51, and 63 using multiplication.

3. $x^2 + 7x + 10$

7. $x^2 - 7x + 12$

5. $x^2 + 11x + 10$

9. $x^2 - 12x + 36$

check:

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11. $y^2 - 8y + 15$

13. $x^2 + 3x - 10$

17. $x^2 - 2x - 15$

21. $x^2 + 4x + 12$

check:

25. $x^2 - 3x + 6$

27. $w^2 - 30w - 64$

29. $y^2 - 18y + 65$

33. $y^2 - 7y + 5$

check:

43. $3x^2 + 15x + 18$

45. $4y^2 - 4y - 8$

49. $3x^2 - 33x + 54$

51. $2r^3 + 6r^2 + 4r$

check:

53. $4x^3 + 12x^2 - 72x$

55. $2r^3 + 8r^2 - 64r$

61. $2w^4 - 26w^3 - 96w^2$

63. $15xy^2 + 45xy - 60x$

check:

69. $-5x^2 + 50x - 45$

73. $-2x^3 - 6x^2 + 8x$

77. $(a+b)x^2 + (a+b)x - 20(a+b)$

81. $x^2 - \frac{2}{5}x + \frac{1}{25}$

Applications:

83. You dive directly upward from a board that is 32 feet high. After t seconds, your height above the water is described by the polynomial

$$-16t^2 + 16t + 32$$

a. Factor the polynomial completely.

b. Evaluate both the original polynomial and its factored form for $t = 2$. Do you get the same answer for each evaluation? Describe the meaning of the answer.

Writing in Mathemtaics:

85. Explain how to factor $x^2 + 8x + 15$.

88. Without actually factoring and without multiplying the given factors, give a reason for which we can tell that the factorization is not correct:

$$x^2 + 46x + 513 = (x - 27)(x - 19)$$