PreCalc 11 Chapter 3 Assignment – hand in for completion marks

Name: _____

Complete the following questions showing all work and steps where applicable.

1. For each expression below, decide which type of factoring is needed, then put the number of the expression in the appropriate column. (You are not required to give the factorization of the expressions.)

Expressions	A GCF <u>only,</u> no further factoring possible	B GCF if there is one, then difference of squares	C GCF if there is one, then trinomial factoring
1. $21x^2y^2 - 4xy^3 + 2xy^2$ 2. $x^2 + 3x - 40$ 3. $(x-y)^2 - 49$ 4. $x^2 + 7x - 8$ 5. $25 - x^2$ 6. $5x^2 + 15x$ 7. $2x^2 + 8$ 8. $7x^2 - 14x - 21$ 9. $3x^2 - 27$ 10. $5x^2 + 6x + 1$			

2. Fully factor each of the following. Expand your answers to check they are correct.

a) $-8x^3y + 12x^5y^4 - 30x^2y^2$

b) $x^2 - 3x - 28$

c) $6x^2 + 4x - 66$

3. Fully factor each of the following. You do not have to expand your answers to check.

a) $4(x + 2)^2 - 25(y - 1)^2$

b) $0.2x^2 + 0.1x - 1.5$

c) $2(x-1)^2 - 5(x-1) - 12$

4. Solve the following quadratic equations by **factoring** (not by using the quadratic formula).

a) $x^2 - 7x + 12 = 0$

b) $2x^2 + 3x = 12 - 7x$

c) $10x^2 + x - 3 = 0$

d) $3x^2 - 4x = 7$

5. Solve the following quadratic equations. Verify each solution. For part (a), begin by giving the restrictions.

a) $\sqrt{x+11} = x+5$

b) $(x-4)^2 - 15 = 21$

6. Determine the discriminant of the following, then use it to determine whether the equation has NO, ONE, or TWO real roots:

a) $\quad -9x^2 - 12x - 5 = 0$

b) $\quad 5x^2 - 3x - 7 = 0$

7. Determine what value of k is needed for each option, for this equation: $\quad 2x^2 + 8x + k = 0$

a) The equation has no real roots

b) The equation has exactly one real root

c) The equation has two real roots

8. **Solve** the following equations, using the quadratic formula. Give solutions in simplest form. Do not convert answers to decimals.

a) $5x^2 + 16x + 3 = 2x^2 + 10x + 7$

b) $x(x - 6) + 3(x + 11) = 40$