First name: _____ Last name: _____ Student ID: _____

Chapter 5 Quadratic Equations (1) Homework

1. Solve each equation by factoring.

1. $x^2 + 4x - 72 = 5x$	2. $x^2 - 10x - 11 = 0$	3. $-2x^2 + 6x + 56 = 0$
4. $x^2 + 4x - 21 = 0$	5. $x^2 + 8x = -12$	6. $x^2 + 12x = -20$
7. $3x^2 + 11x - 20 = 0$	8. $28x^2 - 81x + 45 = 0$	9. $-6x^2 + 72x - 312 = -150$
10. $-53x + 95 = -5x^2 - 9$	11. $x^2 + 14x + 24 = 0$	12. $8x^2 - 55x = -42$

2. Solve each equation by Substitution

1. $-(x+3)^2+4(x+3)=-21$	2. $x^4-21x^2-35=65$

3. Solve for x.

1. $2x(x-2)+x(x+1)=0$	2. $x(2x-3)+4(x+1)=2(3+2x)$
3. $\frac{x-1}{2}+\frac{x-1}{3}=x^2$	4. $\frac{5x+1}{4}-\frac{2x-1}{2}=x^2$

Word problems:

1. When the square of a certain number is diminished by 9 times the number the result is 36. Find the number.

2. A certain number added to its square is 30. Find the number.

3. Find two positive numbers whose ratio is 2:3 and whose product is 600.

4. The product of two consecutive odd integers is 99. Find the integers.

5. Find two consecutive positive integers such that the square of the first is decreased by 17 equals 4 times the second.

6. The ages of three family children can be expressed as consecutive integers. The square of the age of the youngest child is 4 more than eight times the age of the oldest child. Find the ages of the three children.

7. Find three consecutive odd integers such that the square of the first increased by the product of the other two is 224.

8. A rod of unknown length is used to measure the dimensions of a rectangular door. The rod is 4 ft longer than the width of the door, 2 ft longer than the height of the door, and the same length as the door's diagonal. What are the dimensions of the door?

9. While hiking along the top of a cliff, Harlan knocked a pebble over the edge. The height, h, in metres, of the pebble above the ground after t seconds is modelled by $h = -5t^2 – 20t + 100$.

a) Convert the relation to the vertex form by completing the square.

b) How long will the pebble take to hit the ground using the vertex form?

b) For how long is the height of the pebble greater than 95 m?