Worksheet Chapter 6   Name _____

Direction: Write neatly; show your work in an organized fashion.   Factor Completely (#1 - #8)

1. $36mn - 9m^2n^2$	2. $9t^3 - 12t^2 + 3t - 4$
3. $z^2 + 20z + 99$	4. $5b^2 + 25b - 120$
5. $5c^2 + c - 18$	6. $12x^2 + 28x - 24$
7. $a^2 - 14a + 49$	8. $25m^2 - 4n^2$
9. Solve the equation: $2y^2 + 12y = -10$	10. The length of a rectangle is 2 more than twice the width. The area is 60 in^2. Find the dimensions.

1. $36mn - 9m^2n^2$ $= 9mn(4 - mn)$	2. $9t^3 - 12t^2 + 3t - 4$ $= 3t^2(3t - 4) + 1(3t - 4)$ $= (3t^2 + 1)(3t - 4)$
3. $z^2 + 20z + 99$ $= (z + 9)(z + 11)$	4. $5b^2 + 25b - 120$ $= 5(b^2 + 5b - 24)$ $= 5(b - 3)(b + 8)$
5. $5c^2 + c - 18$ $= (5c - 9)(c + 2)$	6. $12x^2 + 28x - 24$ $= 4(3x^2 + 7x - 6)$ $= 4(3x - 2)(x + 3)$
7. $a^2 - 14a + 49$ $= (a - 7)^2$	8. $25m^2 - 4n^2$ $= (5m + 2n)(5m - 2n)$

9. Solve the equation:
   $2y^2 + 12y = -10$
   $\underline{\quad + 10 \quad +10}$
 	
$2y^2 + 12y + 10 = 0$
 	
so,
$2(y^2 + 6y + 5) = 0$
$2(y + 5)(y + 1) = 0$
 	
so y+ 5 = 0   or y + 1 = 0
   $\underline{-5 \quad -5 \qquad -1 \quad -1}$
 	
so y = -5 or -1
	10. The length of a rectangle is 2 more than twice the width. The area is 60 in^2. Find the dimensions.
	
	Let x = width
	So 2x + 2 = length
	
	Area = (width)(length)
	So
	$60 = (x)(2x+2)$
	$60 = 2x^2 + 2x$
	$\underline{-60 \qquad\quad -60}$
	$0 = 2x^2 + 2x - 60$
	$0 = 2(x2 + x - 30)$
	$0 = 2(x + 6)(x - 5)$
	
	So
	x + 6 = 0 or x − 5 = 0
	$\underline{\; - 6 \;\; -6 \qquad + 5 \;+5}$
	x = - 6 or x = 5
	
	But width can't be –6
	So width is 5 inches
	And length is 12 in.