10/3/2012 - Sec 6.5 Math 1010

#60

#45

#65

#45 $m^3 + m^2 - n^3 - n^2$

~~$m^2(m+1) - n^2(n+1)$~~

$m^3 - n^3 + m^2 - n^2$

$(m-n)(m^2+mn+n^2) + (m+n)(m-n)$

$\boxed{(m-n)(m^2+mn+n^2+m+n)}$

#60 $x^2 - 2xy + y^2 - 4$

$(x-y)^2 - 4$

$((x-y)+2)((x-y)-2)$

$\boxed{(x-y+2)(x-y-2)}$

#65

u^2 ↓ $21m^4 - 32m^2 - 5$ ↓ u

$\frac{3}{21}$, $\frac{-35}{21}$

ac	b
-105	-32
1, -105	
3, -35	-32

$\frac{1}{7}$, $\frac{-5}{3}$

$(7m^2+1)(3m^2-5)$

$\boxed{(7m^2+1)(3m^2-5)}$

#40

$12k^2 - 17kq - 5q^2$

$(mk+nq)(mk+nq)$

$\frac{-20}{12}\frac{5}{3}$, $\frac{3}{12}\frac{1}{4}$

-60	-17
-12, 5	-7
-20, 3	-17

$\frac{-5}{3}$, $\frac{1}{4}$

$\boxed{(3k-5q)(4k+q)}$

Sec 6.5 Solve Equations by Factoring

Back in Chapter 2

Solved $4x+2=10$

$-2 \quad -2$

$\frac{4x}{4} = \frac{8}{4}$

$x = 2$

$x^2 + 3x = -2$

~~$x^2 = 3x = 2$~~

Zero-Factor Property

If two Numbers have a product of 0, then at least one of the Numbers must be 0

$ab = 0$, then $a = 0$ or $b = 0$

No 1-factor property

~~$a \cdot b = 1$, $a = 1$ or $b = 1$~~

$X(X+2)=0$

$X=0$, $X+2=0$

$-2 \quad -2$

$X=-2$

$X=0,-2$

An Equation that can be written in the form $ax^2+bx+c=0$ is a Quadratic Equation and is said to be in Standard Form

To Solve a Quadratic Eq by Factoring

1st Write in Standard form

2nd Factor

3rd Use the Zero-factor Property

4th Find the solutions

5th Check by substituting in the Original Equation

$$x^2 + 3x = -2$$
$$+2 \quad +2$$

$x^2 + 3x + 2 = 0$ ← standard form ✓

$(x+2)(x+1) = 0$ ← factor ✓

$x+2=0$, $x+1=0$ ← zero-factor property ✓

$-2 \quad -2 \qquad -1 \quad -1$

$x = -2$, $x = -1$ ← solve

$x = -2, -1$

Check

$x = -2$

$(-2)^2 + 3(-2) = -2$

$4 + -6 = -2$

$-2 = -2$ ✓

$x = -1$

$(-1)^2 + 3(-1) = -2$

$1 + -3 = -2$

$-2 = -2$ ✓

38 $6x^3 - 13x^2 - 5x = 0$

$x(6x^2 - 13x - 5) = 0$

-30	-13
~~$3, -10$~~	~~-7~~
$2, -15$	-13

$\frac{2}{6}, \frac{-15}{6}$

$\frac{1}{3}, -\frac{5}{2}$

$x(3x+1)(2x-5) = 0$

$x = 0$, $3x+1=0$, $2x-5=0$

$-1 \quad -1 \qquad +5 \quad +5$

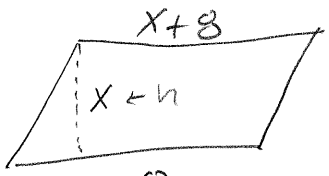
$\frac{3x}{3} = \frac{-1}{3} \qquad \frac{2x}{2} = \frac{5}{2}$

$x = 0$

$x = -\frac{1}{3}$

$x = \frac{5}{2}$

Example 7 pg 347



Area = 48

$A = b \cdot h$

$48 = (x+8)x$

$48 = x^2 + 8x$

$-48 \quad -48$

$0 = x^2 + 8x - 48$

$x^2 + 8x - 48 = 0$

$(x+12)(x-4) = 0$

$x + 12 = 0 \qquad x - 4 = 0$

$-12 \quad -12 \qquad +4 \quad +4$

$x = -12 \qquad x = 4$

height = 4m

base = 12m