Notes: Fun with Factoring

Standard Form of Quadratic: ax^2+bx+c

① $m^2+3m-10$

Bring Down — Rewrite — Bring Down

$\left(\frac{m^2}{m}+\frac{5m}{m}\right)\left(\frac{-2m}{-2}\frac{-10}{-2}\right)$

$m(m+5)-2(m+5)$ ✓ ✓

$(m+5)(m-2)$

3	-10
5+-2 ✓	5·-2 ✓

② $\frac{-20z^7}{z}+\frac{9z^4}{z}-\frac{2z}{z}$

GCF? Yes! z!

$z(-20z^6+9z^3-2)$ Solution!

Is this a quadratic?

No, highest exponent is not 2!!

So, we cannot factor further.

STEPS:

① Look for GCF

② Create "t" table
- → What multiplies to A*C
- → What adds to B?

③ Rewrite our "B" term using the #s we found.

④ Make groups of two terms and factor (look for GCF)

⑤ Pull out Factors!
- Matching set.
- terms in front of set

Notes: Factoring

3. $35u^2 + 83u + 36$

B	AC
83	1260
105+12	12·105 ✓
X	
20+63 ✓	20·63 ✓

$\frac{35u^2}{5u} + \frac{80u}{5u} + \frac{63u}{9} + \frac{36}{9}$

$5u(7u+4)\ 9(7u+4)$ ✓ ✓

$(7u+4)(5u+9)$

4. $49r^2 - 81$

B	AC
0	-3969

Difference of Squares

$\sqrt{49r^2} = 7r$

$\sqrt{81} = 9$

$(7r+9)(7r-9)$

Calculator Tricks!

- Find GCF!!

  Math → Num → #9

Find Factors!

$y = 1260 | X$

- Look for x & y that add to 83

* can still use same process However its, special STEPS!!

① Take the $\sqrt{}$ of both terms

② Write out factors.
- → Add Terms (+)
- → Subtract Terms (-)

Some of these will not be factorable!

ex) x^2+7x+9

7	9
x	9·1
x	3·3

Write! DNF

Does not Factor

ex) $2x+3$

DNF

ex) $5x^2+7$

DNF

0	35
x	7·5

*There will be 5 DNF!!

(5) $\frac{90p^2}{2}+\frac{182p}{2}+\frac{36}{2}$

$2(45p^2+91p+18)$

91	810
81+10 ✓	81·10 ✓

$2\left[\left(\frac{45p^2}{9p}+\frac{81p}{9p}\right)+\left(\frac{10p}{2}+\frac{18}{2}\right)\right]$

$2[9p(5p+9)\ 2(5p+9)]$

$2(5p+9)(9p+2)$