Date: 03.05.19

IV Factorable Trinomials:

Recall that, $(x+3)(x+5) = x^2+5x+3x+15$

$= \boxed{x^2+8x+15}$

Now start with $x^2+8x+15$ & find its original factors.

Look for two numbers whose product is 15 & whose sum is 8. Those two numbers are +5 & +3. So, my two binomials are $(x+5)$ & $(x+3)$.

$$x^2+\underbrace{8}_{\text{sum}}x+\underbrace{15}_{\text{product}}$$

$= (x+3)(x+5)$

1, 15

−1, −15

3, 5

−3, −5

A. $x^2+7x+12 = (x+3)(x+4)$

B. $x^2+9x+14 = (x+2)(x+7)$

C. $x^2-12x+20 = (x-2)(x-10)$

D. $x^2-2x-35 = (x+5)(x-7)$

E. $x^2+4x-12 = (x+6)(x-2)$

F. $x^2+2x+1 = (x+1)(x+1) = (x+1)^2$

G. $x^2-8x+16 = (x-4)(x-4) = (x-4)^2$

H. $x^2+3x+5 = (x+\quad)(x+\quad)$

PRIME

P-4 Webassign Question :

18. $x^5+8x^3+x^2+8$

$= x^5+x^2+8x^3+8$

$= x^2(x^3+1)+8(x^3+1)$

$= (x^3+1)(x^2+8)$

$(x+1)(x^2-x+1) \qquad (x^2+8)$

$11x^2 - 62x + 35$

$= \boxed{(x-5)(11x-7)}$

11. $8t^3 - 1$

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

$= (2t-1)\left((2t)^2 + 2t\cdot 1 + 1^2\right)$

$= \boxed{(2t-1)(4t^2+2t+1)}$

$343t^3 - 1$

$= (7t)^3 - 1^3$

$= (7t-1)\left((7t)^2 + 7t\cdot 1 + 1^2\right)$

$= \boxed{(7t-1)(49t^2+7t+1)}$

$6 - y - y^2 = (3+y)(2-y)$

$-3y + 2y - y^2 + 6$

$= \boxed{(3+y)(2-y)}$

P.5 Rational Expressions :
(Fractional)

$\frac{18x^3}{60x^5} = \frac{\cancel{2}\cdot 3\cdot \cancel{3}\cdot \cancel{x}\cdot \cancel{x}\cdot \cancel{x}}{\cancel{2}\cdot 2\cdot \cancel{3}\cdot 5\cdot \cancel{x}\cdot \cancel{x}\cdot \cancel{x}\cdot x\cdot x}$

$= \boxed{\frac{3}{10x^2}}$

$\frac{2x^2y}{xy-y} = \frac{2\cdot x\cdot x\cdot y}{xy-y} = \frac{2\cdot x\cdot x\cdot \cancel{y}}{\cancel{y}(x-1)} = \boxed{\frac{2x^2}{x-1}}$

$\frac{9x^2+9x}{2x+2} = \frac{9x\cancel{(x+1)}}{2\cancel{(x+1)}} = \boxed{\frac{9x}{2}}$

$\frac{y^2-16}{y^2+7y+12} = \frac{\overset{1}{\cancel{(y+4)}}(y-4)}{(y+3)\cancel{(y+4)}} = \boxed{\frac{y-4}{y+3}}$

$\frac{x-5}{10-2x} = \frac{x-5}{2(5-x)} = \frac{\cancel{x-5}}{-2\cancel{(x-5)}} = \boxed{-\frac{1}{2}}$

opposites

$x-5+5-x=0$

I can cancel opposites if I introduce a factor of -1.

$$\# \quad \frac{x^2-25}{5-x}$$

$$= \frac{(x+5)\cancel{(x-5)}^{1}}{-\cancel{(x-5)}}$$

$$= -(x+5)$$

$$= \boxed{-x-5}$$