

① From memory, list the formula for d , the discriminant of a Second Degree Trinomial.

② Find the discriminant of:

$$4x^2 - 20x + 25$$

③ If the trinomial in #2 can be factored, do so...

$$4x^2 - 20x + 25$$

$a=4$ $b^2 - 4ac = d = \text{discriminant}$

$b=-20$ $(-20)^2 - 4(4)(25)$

$c=25$ $400 - 400 = \boxed{0}$ Yes, factorable... it is also A Perfect Square Trinomial

$$\therefore \boxed{(2x-5)^2} = \text{factors}$$

Homework Review Pg. 751 # 2, 5, 8, 11, 14, 17, 20,
23, 26, 29 (middle column)

$$\textcircled{2} \quad w^2 + 4w = \boxed{w(w+4)}$$

$$\textcircled{5} \quad 6x^2 + 2x = \boxed{2x(3x+1)}$$

$$\textcircled{8} \quad N^2 + 8N + 15$$

$$\begin{array}{l} \text{sum} = 8 \\ \text{prod} = 15 \\ \quad \swarrow \searrow \\ \quad +3 \quad +5 \end{array}$$

$$\therefore \boxed{(N+3)(N+5)}$$

$$\textcircled{11} \quad m^2 + 6m - 7$$

$$\begin{array}{l} \text{sum} = 6 \\ \text{prod} = -7 \\ \quad \swarrow \searrow \\ \quad -1 \quad +7 \end{array}$$

$$\therefore \boxed{(m-1)(m+7)}$$

$$\textcircled{14} \quad p^2 - 5p + 6$$

$$\begin{array}{l} \text{sum} = -5 \\ \text{prod} = 6 \\ \quad \swarrow \searrow \\ \quad -2 \quad -3 \end{array}$$

$$\therefore \boxed{(p-2)(p-3)}$$

NOTE: 1, 6 look good but the signs will not work!

$$\textcircled{17} \quad N^2 - 7N - 44$$

$$\begin{array}{l} \text{sum} = -7 \\ \text{prod} = -44 \\ \quad \swarrow \searrow \\ \quad +4 \quad -11 \end{array}$$

$$\therefore \boxed{(N+4)(N-11)}$$

②⑩ $2y^2 + 9y - 5$

Sum = 9
 prod = -10
 $\begin{array}{c} 1 \quad 1 \\ -1 \quad +10 \end{array}$

$\therefore (2y^2 - 1y) + (10y - 5)$

$y(2y - 1) + 5(2y - 1)$

$\boxed{(2y - 1)(y + 5)}$

②③ $6r^2 - 5r + 1$

Sum = -5
 prod = 6
 $\begin{array}{c} 1 \quad 1 \\ -2 \quad -3 \end{array}$

$\therefore (6r^2 - 2r) + (-3r + 1)$

$2r(3r - 1) + -1(3r - 1)$

$\boxed{(3r - 1)(2r - 1)}$

②⑥ $c^2 - 64 \Rightarrow \boxed{(c - 8)(c + 8)} \quad \text{DOS}$

②⑨ $j^2 - 12j + 36$

$\begin{array}{ccc} \downarrow \sqrt{j^2} & & \downarrow \sqrt{36} \\ \{j\} & \xrightarrow{2 \cdot j \cdot 6} & \{6\} \\ & \checkmark & \end{array}$

Perfect Square Trinomial

$\therefore \boxed{(j - 6)(j - 6)}$

OR

$\boxed{(j - 6)^2}$

A QUADRATIC EQUATION IN STANDARD form is $ax^2 + bx + c = 0$

if $ax^2 + bx + c$ can be factored, the solution to the equation is easily found by the ZPP (Zero Product Property)

Ex $\boxed{x^2 + 3x - 10 = 0}$ Equation 1

$$\begin{array}{l} \text{sum} = 3 \\ \text{prod} = -10 \\ \quad \swarrow \searrow \\ \quad -2 \quad +5 \end{array}$$

$\therefore \boxed{(x-2)(x+5) = 0}$ Equation 2

if $x=2$ then $(2-2)(2+5) = 0$
 $0(7) = 0 \checkmark$

$\therefore x$ is A SOLUTION TO Equation 2 AND

Equation 1 CK $(2)^2 + 3(2) - 10 \stackrel{?}{=} 0$
 $4 + 6 - 10 \stackrel{?}{=} 0 \checkmark$

Similarly, $x = -5$ is also A solution.

CK $(-5)^2 + 3(-5) - 10 \stackrel{?}{=} 0$
 $25 - 15 - 10 \stackrel{?}{=} 0 \checkmark$

Solution $\boxed{x = \{2, -5\}}$

Name the two solutions using ZPP:

Ⓐ $(x-8)(x-2) = 0$

Ⓑ $(3x+1)(2x-7) = 0$

Ⓒ $(5x-4)(4x+1) = 0$

Can you find the discriminant of
 $-3x^2 + 2x$?

HINT:

$$-3x^2 + 2x + 0$$

$a = -3$ $b^2 - 4ac$ $\rightarrow 0$

$b = 2$ $(2)^2 - 4(-3)(0)$

$c = 0$

$\boxed{4} = d$

Classwork / homework $\Rightarrow$ Worksheet
 (14 problems)

↓
 odds

↓
 evens

Fri. 8-26-11 Class = odds , Homework = evens
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Date _____ Period _____

Find the value of the discriminant of each quadratic equation.

1) $-r^2 + 6r + 3 = 0$

2) $x^2 - x - 4 = 0$

3) $-5n^2 - n + 1 = 0$

4) $-3b^2 + 4b - 1 = 0$

Factor each completely.

5) $b^2 - 9b + 20$

6) $v^2 - v$

7) $5p^2 - 33p - 56$

8) $5x^2 - 16x - 16$

9) $3k^2 + 16k + 20$

10) $2r^2 - 11r + 14$

Solve each equation by factoring.

11) $x^2 - 2x - 15 = 0$

12) $v^2 + 2v - 8 = 0$

13) $4n^2 - 15n - 25 = 0$

14) $6a^2 + 7a - 5 = 0$