

Multiplying Polynomials

$$\begin{array}{r}
 \begin{array}{ccc}
 \overset{2}{2} & \overset{3}{4} & 6 \\
 \times & 1 & 6 \\
 \hline
 12 & 24 & 36 \\
 + 20 & 40 & 60 \\
 \hline
 32 & 64 & 96
 \end{array}
 \end{array}
 \left. \vphantom{\begin{array}{r} 2 \\ 4 \\ 6 \end{array}} \right\} \text{CLT}$$

Ex: $\frac{27}{27}$) $1x^2 + 7x - 9$ ← trinomial

(x) $2x + 1$ ← binomial

$$\begin{array}{r}
 1x^2 + 7x - 9 \\
 + 2x + 1 \\
 \hline
 1x^2 + 7x - 9 + 2x + 1 \\
 = 1x^2 + 9x - 8
 \end{array}$$

$$\begin{array}{r}
 2x^3 + 14x^2 - 18x \\
 \hline
 2x^3 + 15x^2 - 11x - 9
 \end{array}$$

Ex: $\frac{28}{28}$)

	a^2	$-3a$	$+11$
$5a$	$5a^3$	$-15a^2$	$+55a$
$+2$	$2a^2$	$-6a$	$+22$

$$= 5a^3 - 13a^2 + 49a + 22$$

$$36) \quad 5x^4 + 0x^3 - 2x^2 + 0x + 1$$

insert missing term

$$(x) \quad x^2 - 5x + 3$$

$$\begin{array}{r}
 15x^4 \quad \cancel{0x^3} \quad -6x^2 \quad \cancel{0x} \quad 3 \\
 -25x^5 \quad \cancel{0x^4} \quad 10x^3 \quad \cancel{0x^2} \quad -5x \\
 5x^6 \quad \cancel{0x^5} \quad -2x^4 \quad \cancel{0x^3} \quad 1x^2
 \end{array}$$

$$5x^6 - 25x^5 + 13x^4 + 10x^3 - 5x^2 - 5x + 3$$

$$\frac{5x}{40}$$

added missing term

$$-7b^3 + 0b^2 + 2b - 3$$

$5b^2$	$-35b^5$	$0b^4$	$10b^3$	$-15b^2$
$-2b$	$+14b^4$	$0b^3$	$-4b^2$	$+6b$
$+4$	$-28b^3$	$0b^2$	$8b$	-12

$$= -35b^5 + 14b^4 - 18b^3 - 19b^2 + 14b - 12$$