

Period

Name

Date

Multiplying Binomials.

1) $(x+3)(x+8)$ Foil

$$x^2 + 8x + 3x + 24$$

$$x^2 + 11x + 24$$

2) $(y-4)(y+7)$ Foil

$$y^2 + 7y - 4y - 28$$

$$y^2 + 3y - 28$$

3) $(m+9)(m-3)$ Foil

$$m^2 - 3m + 9m - 27$$

$$m^2 + 6m - 27$$

4) $(2x-6)(x+3)$ Foil

$$2x^2 + 6x - 6x - 18$$

$$2x^2 - 18$$

5) $(n-5)(3n-4)$ Foil

$$3n^2 - 4n - 15n + 20$$

$$3n^2 - 19n + 20$$

$$6) (k-9)(k+5) \text{ Foil}$$

$$k^2 + 5k - 9k - 45$$

$$k^2 - 4k - 45$$

$$7) (c-6)(c-4) \text{ Foil}$$

$$c^2 - 4c - 6c + 24$$

$$c^2 - 10c + 24$$

$$8) (2x-5)(x+3) \text{ Foil}$$

$$2x^2 + 6x - 5x - 15$$

$$2x^2 + 1x - 15$$

$$9) (3x+1)(5x-3) \text{ Foil}$$

$$15x^2 - 9x + 5x - 3$$

$$15x^2 - 4x - 3$$

$$10) (d+2)(4d-3) \text{ Foil}$$

$$4d^2 - 3d + 8d - 6$$

$$4d^2 + 5d - 6$$

11) $(5x-1)(3x-2)$ Foil

$$15x^2 - 10x - 3x + 2$$

$$15x^2 - 13x + 2$$

12) $(x+3)(x+5)$ Foil

$$x^2 + 5x + 3x + 15$$

$$x^2 + 8x + 15$$

13) $(x+3)(x-5)$ table

| | |
|-----------------|----------|
| $x+3$ | $x-5$ |
| x^2 | $-5x-15$ |
| $3x$ | |
| $x^2 - 2x - 15$ | |

Foil

$$(x+3)(x-5)$$

$$x^2 - 5x + 3x - 15$$

$$x^2 - 2x - 15$$

14) $(a-2)(a-3)$

| | |
|----------------|---------|
| $a-2$ | $a-3$ |
| a^2 | $-3a+6$ |
| $-2a$ | |
| $a^2 - 5a + 6$ | |

15) $(w-4)(w+8)$

| | |
|-----------------|---------|
| $w-4$ | $w+8$ |
| w^2 | $8w-32$ |
| $-4w$ | |
| $w^2 + 4w - 32$ | |

$$16) (5h - 3)(h + 7)$$

$$17) (x - 3)(2x + 3)$$

$$\begin{array}{r} 5h - 3 \\ h + 7 \\ \hline 35h - 21 \\ 5h^2 - 3h \\ \hline 5h^2 + 32h - 21 \end{array}$$

$$\begin{array}{r} x - 3 \\ 2x + 3 \\ \hline 3x - 9 \\ 2x^2 - 6x \\ \hline 2x^2 - 3x - 9 \end{array}$$

$$18) (4m^2 - 1)(m^2 + 4)$$

$$4m^4 + 16m^2 - 1m^2 - 4$$

$$4m^4 + 15m^2 - 4$$

$$19) (x^3 + 3)(x^2 - 3x)$$

$$x^5 - 3x^4 + 3x^2 - 9x$$

$$20) (x + 3)(x^2 - 2x + 4)$$

$$+ \begin{array}{r} x^3 - 2x^2 + 4x \\ + 3x^2 - 6x + 12 \\ \hline x^3 + x^2 - 2x + 12 \end{array}$$

$$20) (4p^2 + 2)(3p - 1) \quad \text{FoIL}$$

$$12p^3 - 4p^2 + 6p - 2$$

$$21) (7x + 3)(4x - 6) \quad \text{FoIL}$$

$$28x^2 - 42x + 12x - 18$$

$$28x^2 - 30x - 18$$

$$22) (x + 3)(x^2 - 2x - 4)$$

$$x^3 - 2x^2 - 4x$$

$$+ 3x^2 - 6x - 12$$

$$\hline x^3 + x^2 - 10x - 12$$

distributive property

$$23) (x - 5)(x^2 - 5x + 2)$$

$$x^3 - 5x^2 + 2x$$

$$- 5x^2 + 25x - 10$$

$$+ \hline x^3 - 10x^2 + 27x - 10$$

$$\begin{array}{r}
 24) \quad (2a-6)(3a^2+a+4) \\
 6a^3 + 2a^2 + 8a \\
 + \quad -18a^2 - 6a - 24 \\
 \hline
 6a^3 - 16a^2 - 2a - 24
 \end{array}$$

$$\begin{array}{r}
 25) \quad (3x+6)(x^2-2x+7) \\
 3x^3 + 6x^2 + 21x \\
 + \quad 6x^2 - 12x + 42 \\
 \hline
 3x^3 + 12x^2 + 9x + 42
 \end{array}$$

$$\begin{array}{r}
 26) \quad (t+8)(3t^2+4t+5) \\
 3t^3 + 4t^2 + 5t \\
 + \quad 24t^2 + 32t + 40 \\
 \hline
 3t^3 + 28t^2 + 37t + 40
 \end{array}$$

$$27) (3x^1 + 13)(2x^2 + 3x - 1)$$

$$6x^3 + 9x^2 - 3x$$

$$26x^2 + 39x - 13$$

$$6x^3 + 35x^2 + 36x - 13$$

$$28) (3x - 8)(4x^2 + 2x + 3)$$

$$12x^3 + 6x^2 + 9x$$

$$-32x^2 - 16x - 24$$

$$12x^3 - 26x^2 - 7x - 24$$

$$29) (6t - 1)(5t^2 + 3t - 1)$$

$$30t^3 + 18t^2 - 6t$$

$$-5t^2 - 3t + 1$$

$$30t^3 + 13t^2 - 9t + 1$$

~~20~~