3.5 Polynomials of the Form $x^2 + bx + c$

## Lesson 6

Jan 30-4:12 PM

**Connect** Multiplying Binomials

Method 1: Distribution

| In Arthimtic | In Algebra |
| --- | --- |
| (12)(14) | (x - 4)(x + 2) |
| $10(14) + 2(14)$ | $x(x+2) - 4(x+2)$ |
| $140 + 28$ | $x^2 + 2x - 4x - 8$ |
| 168 | $x^2 - 2x - 8$ |

Jan 30-4:17 PM

**Connect** Multiplying Binomials

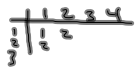
Method 2: Vertical Math

| In Arthimtic | In Algebra |
| --- | --- |
| (12)(14) | (x - 4)(x + 2) |
| 14 × 12 = 28 + 140 = 168 | $x-4$ × $x+2$ = $2x-8$, $x^2-4x$, $x^2-2x-8$ |

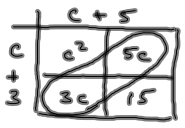
Jan 30-4:17 PM

**Connect** Multiplying Binomials

Method 3: Area Model




Expand: (c + 5)(c + 3)




$c^2 + 3c + 5c + 15$

$c^2 + 8c + 15$

**Steps:**

Make a rectangle with the dimensions given by the binomial.

Divide the rectangle into 4 smaller rectangles.

Calculate the area of each

Collect like terms

Write the expression

Jan 30-4:17 PM

**Connect** Multiplying Binomials

Expand: (8 - b)(3 - b)

Method 1

$(8-b)(3-b)$

$8(3-b)-b(3-b)$

$24-8b-3b+b^2$

$b^2-11b+24$

Method 2

$8-b$

$3-b$

$-8b+b^2$

$24-3b$ ∪

$24-11b+b^2$

$b^2-11b+24$

Method 3

$8-b$

| | | |
|---|---|---|
| 3 | 24 | -3b |
| -b | -8b | $+b^2$ |

$b^2-8b-3b+24$

$b^2-11b+24$

Jan 30-4:17 PM

**Practice** YOU TRY!

Expand: (c + 3)(c - 7)

Method 1

$(c+3)(c-7)$

$c(c-7)+3(c-7)$

$c^2-7c+3c-21$

$c^2-4c-21$

Method 2

$c+3$

$c-7$

$-7c-21$

$c^2+3c$ ∪

$c^2-4c-21$

Method 3

$c+3$

| | | |
|---|---|---|
| c | $c^2$ | 3c |
| -7 | -7c | -21 |

$c^2-7c+3c-21$

$c^2-4c-21$

Jan 30-4:17 PM

**Practice** YOU TRY!

Expand: (5 - s)(9 - s)

Method 1

$(5-s)(9-s)$

$5(9-s)-s(9-s)$

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

$s^2-14s+45$

Method 2

$5-s$

$9-s$

$-5s+s^2$

$45-9s$ ∪

$45-14s+s^2$

$s^2-14s+45$

Method 3

$5-s$

| | | |
|---|---|---|
| 9 | 45 | -9s |
| -s | -5s | $s^2$ |

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

$s^2-14s+45$

Jan 30-4:17 PM

**Practice** HOMEWORK!

Textbook Questions:

Page 166 # 9, 10

Page 167 # 12, 18,

Jan 30-4:17 PM