

AA PREP—FACTORIZING VARIATIONS MORE LECTURE

Factor completely.

Grouping:

<p>1) $x(2x-5) + 4(2x-5)$</p> <div style="border: 2px solid red; padding: 5px; display: inline-block; margin-top: 10px;"> $(x+4)(2x-5)$ </div>	<p>2) $x^3 - 10x^2 + 3x - 30$</p> <p style="margin-left: 20px;">$x^2(x-10) + 3(x-10)$</p> <div style="border: 2px solid red; padding: 5px; display: inline-block; margin-top: 10px;"> $(x^2+3)(x-10)$ </div>
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More Complicated Quadratic Trinomials:

$ax^2 + bx + c \quad a \neq 1$

<p>3) $2x^2 + 9x - 5$</p> <p style="margin-left: 20px;">$(2x-1)(x+5)$</p> <p style="margin-left: 40px;">$-x$</p> <p style="margin-left: 40px;">$10x$</p> <div style="border: 2px solid green; padding: 5px; display: inline-block; margin-top: 10px;"> $(2x-1)(x+5)$ </div>	<p style="text-align: center;">GROUPING</p> <p style="margin-left: 20px;">$2x^2 + 9x - 5$</p> <p style="margin-left: 40px;">$10x \quad -1x$</p> <p style="margin-left: 40px;">$9 \quad -10$</p> <p style="margin-left: 40px;">$a \cdot c$</p> <hr style="width: 50%; margin-left: 20px;"/> <p style="margin-left: 20px;">$2x^2 + 10x - x - 5$</p> <p style="margin-left: 40px;">$2x(x+5) - 1(x+5)$</p> <div style="border: 2px solid purple; padding: 5px; display: inline-block; margin-top: 10px;"> $(2x-1)(x+5)$ </div>
<p>4) $3x^2 - 10x - 8$</p> <p style="margin-left: 20px;">$(3x+2)(x-4)$</p> <p style="margin-left: 40px;">$2x$</p> <p style="margin-left: 40px;">$-12x$</p> <div style="border: 2px solid green; padding: 5px; display: inline-block; margin-top: 10px;"> $(3x+2)(x-4)$ </div>	<p style="text-align: center;">GROUPING</p> <p style="margin-left: 20px;">$3x^2 - 10x - 8$</p> <p style="margin-left: 40px;">$-12x \quad 2x$</p> <p style="margin-left: 40px;">$-24 \quad -10$</p> <p style="margin-left: 40px;">$a \cdot c$</p> <hr style="width: 50%; margin-left: 20px;"/> <p style="margin-left: 20px;">$3x^2 - 12x + 2x - 8$</p> <p style="margin-left: 40px;">$3x(x-4) + 2(x-4)$</p> <div style="border: 2px solid purple; padding: 5px; display: inline-block; margin-top: 10px;"> $(3x+2)(x-4)$ </div>

Perfect Square Trinomials:

$$x^2 + 2xy + y^2 = (x+y)(x+y) = (x+y)^2$$

$$x^2 - 2xy + y^2 = (x-y)(x-y) = (x-y)^2$$

<p>5) $9x^2 + 30x + 25$</p> <p style="margin-left: 20px;">$(3x)^2 \quad (5)^2$</p> <div style="border: 2px solid red; padding: 5px; display: inline-block; margin-top: 10px;"> $(3x+5)^2$ </div>	<p>6) $4x^2 - 28x + 49$</p> <p style="margin-left: 20px;">$(2x)^2 \quad (7)^2$</p> <div style="border: 2px solid red; padding: 5px; display: inline-block; margin-top: 10px;"> $(2x-7)^2$ </div>
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Sum/Difference of Cubes (AA preview topic):

$$x^3 + y^3 = (x+y)(x^2 - xy + y^2)$$

$$x^3 - y^3 = (x-y)(x^2 + xy + y^2)$$

SOAP

<p>7) $x^3 - 8$</p> <p style="margin-left: 20px;">$(x)^3 \quad (2)^3$</p> <div style="border: 2px solid purple; padding: 5px; display: inline-block; margin-top: 10px;"> $(x-2)(x^2 + 2x + 4)$ </div>	<p>8) $27x^6 + 64$</p> <p style="margin-left: 20px;">$(3x^2)^3 \quad (4)^3$</p> <div style="border: 2px solid purple; padding: 5px; display: inline-block; margin-top: 10px;"> $(3x^2+4)(9x^4 - 12x^2 + 16)$ </div>
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