Math 10 • Factoring

Factor Completely

[#1]

$8x^2y^2 + 10xy^3z$ $x^2 - 25$ $x^2 - 6x + 9$

$8x^3 - 50xy^2$ $3x^2 - 3x - 60$

$5x(y - 3) - 2(y - 3)$ $12x^2 + 5x - 2$ $25x^2 - 30x + 9$

[#2]

$15x^7y^2 - 10x^3y^3z$ $x^2 - 1$ $x^2 + 9x + 20$

$x^4 - 81$ $5x^2 - 25x - 30$

$5x(y - 1) - 2(y - 1)$ $3x^2 - 11x + 6$ $144x^2 + 24xy + y^2$

[#3]

$x^2 - 3xy - 10y^2$ $5x^2 - 3xy - 2y^2$ $12 - x - x^2$

$x^4 - 7x^2 + 12$ $4x^2 - 10x + 6$ $x^2 + x$

Key

[#1]

$8x^2y^2 + 10xy^3z$
$2xy^2(4x + 5yz)$

$x^2 - 25$
$(x + 5)(x - 5)$

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

$8x^3 - 50xy^2$
$2x(4x^2 - 25y^2)$
$2x(2x + 5y)(2x - 5y)$

$3x^2 - 3x - 60$
$3(x^2 - x - 20)$
$3(x + 4)(x - 5)$

$5x(y - 3) - 2(y - 3)$
$(y - 3)(5x - 2)$

$12x^2 + 5x - 2$
$12x^2 - 3x + 8x - 2$
$3x(4x - 1) + 2(4x - 1)$
$(4x - 1)(3x + 2)$

$25x^2 - 30x + 9$
$(5x - 3)^2$

[#2]

$15x^7y^2 - 10x^3y^3z$
$5x^3y^2(3x^4 - 2yz)$

$x^2 - 1$
$(x + 1)(x - 1)$

$x^2 + 9x + 20$
$(x + 4)(x + 5)$

$x^4 - 81$
$(x^2 + 9)(x^2 - 9)$
$(x^2 + 9)(x + 3)(x - 3)$

$5x^2 - 25x - 30$
$5(x^2 - 5x - 6)$
$5(x + 1)(x - 6)$

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

$3x^2 - 11x + 6$
$3x^2 - 2x - 9x + 6$
$x(3x - 2) - 3(3x - 2)$
$(3x - 2)(x - 3)$

$144x^2 + 24xy + y^2$
$(12x + y)^2$

[#3]

$x^2 - 3xy - 10y^2$
$(x - 3y)(x - 3y)$

$5x^2 - 3xy - 2y^2$
$5x^2 + 2xy - 5xy - 2y^2$
$x(5x + 2y) - y(5x + 2y)$
$(5x + 2y)(x - y)$

$12 - x - x^2$
$-x^2 - x + 12$
$-(x^2 + x - 12)$
$-(x - 3)(x + 4)$

$x^4 - 7x^2 + 12$
$(x^2 - 3)(x^2 - 4)$
$(x^2 - 3)(x + 2)(x - 2)$

$4x^2 - 10x + 6$
$2(2x^2 - 5x + 3)$
$2(2x^2 - 2x - 3x + 3)$
$2(2x(x - 1) - 3(x - 1))$
$2(x - 1)(2x - 3)$

$x^2 + x$
$x(x + 1)$

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[#1]

$15x^3y^2 + 10xy^3z$

$x^2 - 49$

$x^2 - 7x + 12$

$12x^3 - 75xy^2$

$2x^2 + 2x - 40$

$x(x + 2y) - y(x + 2y)$

$8x^2 + 2x - 3$

$25x^2 - 90x + 81$

[#2]

$9x^5y^2 - 6x^4y^2$

$x^2 - y^2$

$x^2 + 8x + 16$

$x^4 - 256$

$3x^2 - 15x - 18$

$x(y - 1) - (y - 1)$

$9x^2 - 9x + 2$

$x^2y^2 + 2xy + 1$

[#3]

$x^2 - 4xy - 5y^2$

$3x^2 - 10xy + 3y^2$

$15 - 2x - x^2$

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

$18x^2 + 21x + 6$

$(x + y)^2 - 25$

Key

[#1]

$5xy^2(3x^2 + 2yz)$	$(x + 7)(x – 7)$	$(x – 3)(x – 4)$
$3x(2x + 5y)(2x – 5y)$	$2(x – 4)(x + 5)$	
$(x + 2y)(x – y)$	$(2x – 1)(4x + 3)$	$(5x – 9)^2$

[#2]

$3x^4y^2(3x – 2)$	$(x + y)(x – y)$	does not factor
$(x^2 + 16)(x + 4)(x – 4)$	$3(x + 1)(x – 6)$	
$(y – 1)(x – 1)$	$(3x – 1)(3x – 2)$	$(xy + 1)^2$

[#3]

$(x – y)(x – 4y)$	$(3x – y)(x – 3y)$	$–(x – 3)(x + 5)$
$(x + 1)(x – 1)(x + 2)(x – 2)$	$3(2x + 1)(3x + 2)$	$(x + y + 5)(x + y – 5)$

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$8x^2y^2 + 10xy^3z$ $x^2 - 25$ $x^2 - 6x + 9$

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$x^4 - 81$
$(x^2 + 9)(x^2 - 9)$
$(x^2 + 9)(x + 3)(x - 3)$

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$x^2 - 3xy - 10y^2$
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$x(5x + 2y) - y(5x + 2y)$
$(5x + 2y)(x - y)$

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$x^4 - 7x^2 + 12$
$(x^2 - 3)(x^2 - 4)$
$(x^2 - 3)(x + 2)(x - 2)$

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$2(2x(x - 1) - 3(x - 1))$
$2(x - 1)(2x - 3)$

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$(x – y)(x – 4y)$	$(3x – y)(x – 3y)$	$–(x – 3)(x + 5)$
$(x + 1)(x – 1)(x + 2)(x – 2)$	$3(2x + 1)(3x + 2)$	$(x + y + 5)(x + y – 5)$