

Math 2201
Factoring Review

Factoring by Removing a GCF:

1. Factor the following:

a) $24w^2t + 16w^3t^2$

$8w^2t(3+2wt)$

b) $4 - 24x$

$4(1-6x)$

c) $6x^2 + 6x$

$6x(x+1)$

d) $4x^2 + 5x$

$x(4x+5)$

e) $3x^4 - 12x^6 + 15x^2$

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

f) $10x^2 - 15x$

$5x(2x-3)$

Factoring by Sum and Product:

2. Factor completely.

a) $x^2 - 16x + 64$

$(x-8)(x-8)$

b) $x^2 + 7x + 6$

$(x+6)(x+1)$

c) $2x^2 + 22x + 48$

$2(x+3)(x+8)$

d) $x^2 + 13x + 42$

$(x+6)(x+7)$

e) $x^2 - 2x - 48$

$(x-8)(x+6)$

f) $30 - 17x + x^2$

$(x-15)(x-2)$

g) $y^2 - 7y - 60$

$(y-12)(y+5)$

h) $x^2 + 10x + 21$

$(x+3)(x+7)$

i) $5x^2 - 20x - 60$

$5(x-6)(x+2)$

Factoring by Logical Reasoning/Decomposition:

4. Factor completely.

a) $4x^2 + 8x + 3$

$(2x+3)(2x+1)$

b) $5x^2 + 6x + 1$

$(5x+1)(x+1)$

c) $2x^2 - 7x + 6$

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

d) $3x^2 + 14x + 15$

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

e) $15x^2 - x - 2$

$(3x+1)(5x-2)$

f) $9x^2 + 12x + 4$

$(3x+2)(3x+2)$

g) $4x^2 - 20x + 25$

$(2x-5)(2x-5)$

h) $6x^2 + 26x + 8$

$2(3x+1)(x+4)$

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Choose what method!

5. Factor the following with the **appropriate** method.

a) $3x^2 + 9x$

$3x(x+3)$

b) $x^2 + 26x + 88$

$(x+4)(x+22)$

c) $x^2 - 21x + 20$

$(x-20)(x-1)$

d) $x^2 + 2x + 1$

$(x+1)(x+1)$

e) $x^2 - 7x - 30$

$(x-10)(x+3)$

f) $x^2 + 6x + 9$

$(x+3)(x+3)$

g) $9x^2 - 6x + 1$

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

h) $2x^2 - 3x - 20$

$(2x+5)(x-4)$

i) $2x^2 - 5x - 3$

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

j) $3 - 4x + x^2$

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

k) $6x^2 + 13x + 5$

$(2x+1)(3x+5)$

l) $10x^2 + 11x + 3$

$(5x+3)(2x+1)$

m) $3x^2 + 6x + 3$

$3(x+1)(x+1)$

n) $16x^2 - 20x - 6$

$2(4x+1)(2x-3)$

o) $11x^2 - 12x + 1$

$(11x-1)(x-1)$

p) $4x^2 - 4x - 3$

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

q) $2x + x^2 - 15$

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

r) $6x^2 - 30x + 24$

$6(x-4)(x-1)$

s) $x^2 + 4x - 45$

$(x+9)(x-5)$

t) $5x^2 + 6x + 1$

$(5x+1)(x+1)$