Math 1201

Sect 3.6 Worksheet #3

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) $6x^2+6x$

$6x(x+6)$

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) $x^2-16x+64$

$(x-8)^2$

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

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

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

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

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)