Getting Started – Unit 4

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Ex. 1 a) Simplify.

a) $(5x^2-4x+8)-(2x^2-3x+6)$

signs

$=5x^2-4x+8-2x^2+3x-6$

$=3x^2-x+2$

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

$=9x^2-4$

Ex. 2: Factor.

a) $6x^2-7x-3$

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

b) $16x^2-25$

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

c) $4x^2-4x+1$

$=(2x-1)^2$

Ex. 3: What term will make each expression a perfect trinomial square?

a) $x^2+8x+\square$

$\square=16$

$(x+4)^2$

b) $4x^2+\square x+25$

$\square=20$

$(2x+5)^2$

$=4x^2+20x+25$

Ex. 4: Write in factored form.

a) $f(x)=-3x^2-13x+10$

$=-(3x^2+13x-10)$

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

b) $h(x)=4x^2-49$

$=(2x-7)(2x+7)$

Ex. 5: Determine the vertex of each quadratic function, and state the domain and range of each.

a) $y=x^2+8x+7$

$=x^2+8x+16-16+7$

$=(x+4)^2-9$

$v(-4,-9)$

$D=\{x\in\mathbb{R}\}$

$R=\{y\in\mathbb{R}\mid y\geq -9\}$

b) $g(x)=-2x^2-12x-11$

$=-2(x^2+6x)-11$

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

$=-2(x+3)^2+18-11$

$=-2(x+3)^2+7$

$\therefore v(-3,7)$

$R=\{y\in\mathbb{R}\mid y\leq 7\}$