Algebra II

7-7

Writing Quadratic Functions

Find a quadratic equation with *integral coefficients* having the given roots. (pg 342)

x^2 must have =

↳ coefficients are integers, no fractions or decimals

7) {2,5}

$x=2$ or $x=5$

$x-2=0$ $x-5=0$

$(x-2)(x-5)=0$

$x^2-7x+10=0$

Find a quadratic equation with *integral coefficients* having the given roots.

23) $\left\{\frac{1\pm i\sqrt{5}}{4}\right\}$

$x=\frac{1+i\sqrt{5}}{4}$ $x=\frac{1-i\sqrt{5}}{4}$

$4x=1+i\sqrt{5}$ $4x=1-i\sqrt{5}$

$4x-1-i\sqrt{5}=0$ $4x-1+i\sqrt{5}=0$

$(4x-1-i\sqrt{5})(4x-1+i\sqrt{5})=0$ +5

$16x^2-4x+4xi\sqrt{5}-4x+1+i\sqrt{5}-4xi\sqrt{5}-i\sqrt{5}-i^2\sqrt{25}=0$

$16x^2-8x+6=0$

Find a quadratic function for each parabola described
(use standard form instead of book instructions.)

25) maximum value 10 = k

x - intercepts {1,3}

Choose either one. (1,0) (3,0)

$F(x)=a(x-h)^2+k$

vertex (2, 10)

Because of symmetry, the *h* of the vertex must be half-way between each *x* intercept.

$F(x)=a(x-2)^2+10$

$0=a(3-2)^2+10$

$-10=1a$

$F(x)=-10(x-2)^2+10$

Temp

Find a quadratic function for each parabola described
(use standard form instead of book instructions.)

29) vertex (2,12)

x - intercepts {-4,8} (-4,0) (8,0)

$F(x)=a(x-2)^2+12$

$0=a(8-2)^2+12$

$-12=36a$

$-\frac{1}{3}=a$

$F(x)=-\frac{1}{3}(x-2)^2+12$

temp

Assignment:

Pg. 342
2-36 even