Lesson 6 Solving Quadratic Functions
Date:
Chapter 4: Linear and

Quadratic Functions:


Lesson 6:
Solving Quadratic
Functions

When you have the rule, you have everything
find $y$ (or $f(x)$ ) when you have $x \longrightarrow$ EAsy!
HARDER $f(x)=1(x-3)^{2}+5$ determine $f(x)=9$

$$
\begin{aligned}
& 1(x-3)^{2}+5=9 \\
& \sqrt{(x-3)^{2}}=\sqrt{4} \\
& x-3= \pm 2 \\
& x-3=2 \quad \frac{x-3=-2}{x=1}
\end{aligned}
$$

$$
x=\{1,5\}
$$

$$
f(x)=1(x-3)^{2}+5
$$



When is:
$\epsilon$ "belongs to"

$$
\begin{array}{ll}
f(x)=9 & x=\{1,5\} \\
f(x) \leqslant 9 & x \in[1,5] \\
f(x)>9 & x \in-\infty \mid[\cup] 5, \infty
\end{array}
$$

example 2

$$
f(x)=x^{2}-7 x+12
$$

a) $f(x) \leq 3$
b) $f(x)>3$

$$
\text { let } f(x)=3
$$

$$
x^{2}-7 x+12=3
$$

(1) $x^{2}-7 x+9=0$
$a=1$
$\Delta=b^{2}-4 a c$
$b=-7$
$=(-7)^{2}-4(1)(9)$

$$
x^{(3)}=\frac{(-7) \pm \sqrt{13}}{2(1)}
$$

(4)

$$
c=15
$$

$$
=49-36
$$

$$
=13
$$

a) $f(x) \leq 3: x \in[1.7,5.3]$

$$
\text { b) } f(x)>3 \quad x \in \infty, 1.7] \cup[5.3, \infty
$$

$$
\text { b) } f(x)>3 \quad x \in \infty, 1.7] \cup[5.3, \infty
$$

example 3

$$
\begin{aligned}
& f(x)=-3 x^{2}-7 x+4 \\
& f(x)=6 \quad x \in\left\{-2,-\frac{1}{3}\right\} \\
& f(x)=4 \quad x \in\left\{-\frac{7}{3}, 0\right\} \\
& f(x)=0 \text { a) } \\
& x \in\left\{\frac{7+\sqrt{97}}{-6}, \frac{7-\sqrt{97}}{-6}\right\}
\end{aligned}
$$

a) Determine solutesin(s) for $x$
a) $f(x)=6$
b)

$$
f(x)>4 \rightarrow x \in]-\frac{7}{3}, 0[
$$

c)

$$
f(x)=0
$$

you can now do:
WB

- page 94 \#3
- page 96 c )
- page 97 \#9,13
- Page 98 \#20
- Page 99 23, 24
- Page 104 \#4, 7, 8 ,

