

# Chapter 4: Quadratic Equations \* Solutions

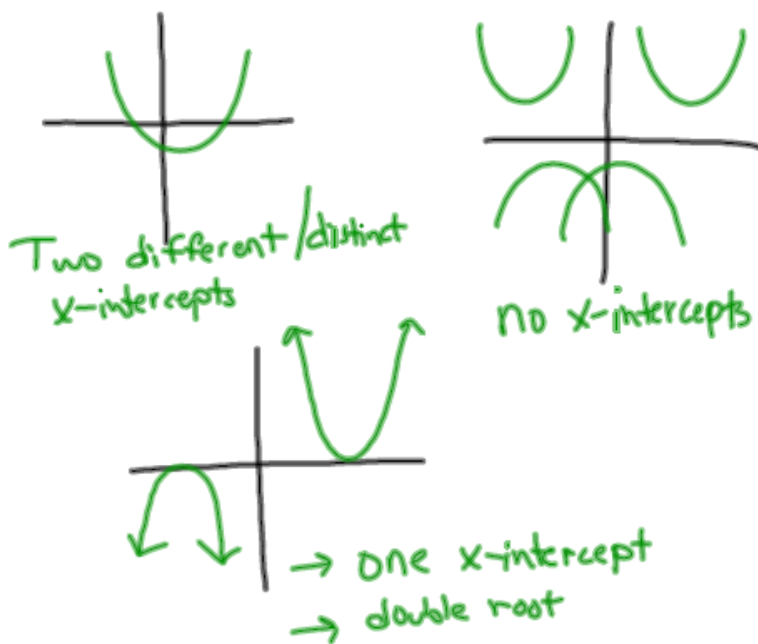
roots of quadratics: Solution to equation

zeros of the function: the value(s) of  $x$  that make  $f(x)=0$ .

x-intercepts of quadratics: Where the graph crosses the x-axis

\* x-intercepts are zeros of the function

## Types of x-intercepts



\* pg. 215  
#1, #2.

# Section 4.2

## Finding the roots by factoring



ex.1)  $x^2+6x+9=0$

add  $\Rightarrow 6$   
mult  $\Rightarrow 9$   

---

 $3 \times 3$

$(x+3)(x+3)=0$   
 $x+3=0 \left\{ \begin{array}{l} x+3=0 \\ x=-3 \end{array} \right.$



2)  $4x^2-64=0$

<u>Diff of Squares</u>	<u>GCF-fact</u>	<u>Solve</u>
$(2x+8)(2x-8)$	$4(x^2-16)$	$4x^2=64$
	$4(x-4)(x+4)$	$x^2=16$
$2x+8=0$	$2x-8=0$	$x = \pm \sqrt{16}, x = \pm 4$
$2x=-8$	$2x=8$	
$x=-4$	$x=4$	
	$x-4=0$	
	$x+4=0$	
	$x=4$	
	$x=-4$	

$$\text{ex.3) } 3x^2 - 2x - 5 = 0$$

Decomposition

$$\begin{array}{l} \text{add} \rightarrow -2 \\ \text{mult} \rightarrow -15 \\ \hline -5 \neq 3 \end{array}$$

$$(3x^2 + 3x)(-5x - 5) = 0$$

$$3x(x+1) - 5(x+1) = 0$$

$$(3x-5)(x+1) = 0$$

$$3x-5=0$$

$$3x=5$$

$$x = \frac{5}{3}$$

$$\left\{ \begin{array}{l} x+1=0 \\ x=-1 \end{array} \right.$$

$$x = -1$$



Practice

pg. 215

#1, 2

pg. 229

1 a, b

2 a, b

7 c, d, e