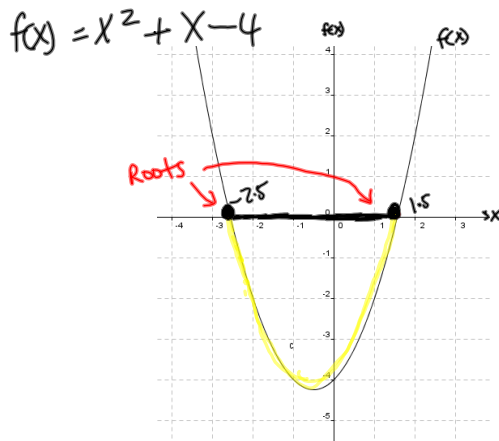
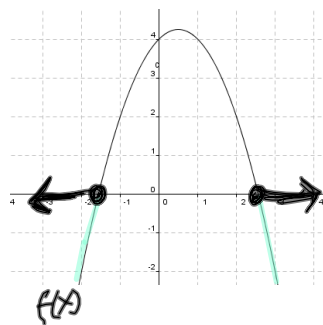


7.2 Quadratic Inequalities



$f(x) = 0$ "Roots"
 $f(x) \leq 0$, $x = ?$
 Inside
 $-2.5 \leq x \leq 1.5$



$f(x) = -x^2 + x + 4$
 $f(x) \leq 0$, $x = ?$
 outside
 $-2.5 \geq x \geq 1.5$

7.2
p228

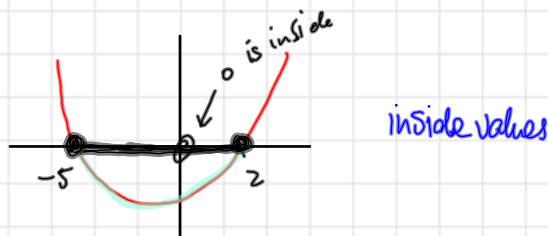
Q1 (ii)

$x^2 + 3x - 10 \leq 0$

Solve if
 $f(x) = 0$

$x^2 + 3x - 10 = 0$
 $(x + 5)(x - 2) = 0$
 $x = -5, x = 2$

Sketch



Solution

$-5 \leq x \leq 2$

algebraic
method

test $f(0) \Rightarrow (0)^2 + 3(0) - 10 = -10 \leq 0$
 which is true \Rightarrow Inside values

Ex. 7.2
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Q9

(i)

$$\frac{x+3}{x+2} < 2, \quad x \neq -2$$

$x+2$ might
be negative

multiply by
 $(x+2)^2$

$-2x^2, -8x, -8$
multiply by -1

solve if $f(x) = 0$

sketch

$$\frac{(x+3)(x+2)^{\cancel{2}}}{\cancel{(x+2)}} < 2(x+2)^2$$

$$x^2 + 2x + 3x + 6 < 2[x^2 + 4x + 4]$$

$$\text{LHS. } < 2x^2 + 8x + 8$$

$$-x^2 - 3x - 2 < 0$$

$$x^2 + 3x + 2 > 0$$

$$x^2 + 3x + 2 = 0$$

$$(x+2)(x+1) = 0$$

$$x = -2, \quad x = -1$$



outside

$$-2 > x > -1$$