

### Domain practice problems – Square Roots with Quadratic Functions

Find the domain for the following functions. You will need to use a sign graph.

1.  $f(x) = \sqrt{x^2 + 2x - 15}$

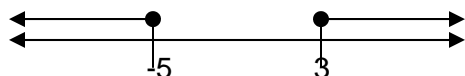
$$x^2 + 2x - 15 \geq 0$$

$$(x + 5)(x - 3) \geq 0$$

$$x + 5 = 0 \quad x - 3 = 0$$

$$x = -5 \quad x = 3$$

$(x + 5)$	-	+	+
$(x - 3)$	-	-	+
	= +	= -	= +
Test Points:	(-6)	(0)	(4)



Domain:  $x \leq -5$  and  $x \geq 3$

2.  $f(x) = \sqrt{x^2 + 6x + 8}$

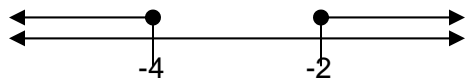
$$x^2 + 6x + 8 \geq 0$$

$$(x + 4)(x + 2) \geq 0$$

$$x + 4 = 0 \quad x + 2 = 0$$

$$x = -4 \quad x = -2$$

$(x + 4)$	-	+	+
$(x + 2)$	-	-	+
	= +	= -	= +
Test Points:	(-5)	(-3)	(0)



Domain:  $x \leq -4$  and  $x \geq -2$