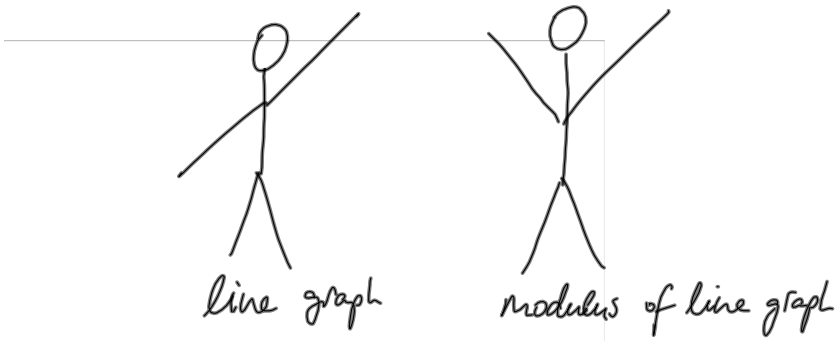
Chapter 7 Algebra 3

Section 7.3 Modulus



1. Modular equations

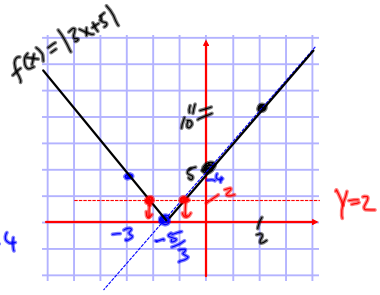
Example 1

Sketch the graph of $f(x) = |3x + 5|$ and hence solve the equation $|3x + 5| = 2$ (i) geometrically and (ii) algebraically.

$g(x) = 3x+5$ $(0,5)$ $(2,11)$

$3x+5=0$
$x = -\frac{5}{3} = -2\frac{2}{3}$

$f(-3) = |3(-3)+5| = |-9+5| = 4$



when $|3x+5| = 2$ $\Rightarrow (3x+5)^2 = 4$

$9x^2+30x+25 = 4$
$9x^2+30x+21=0$
$3x^2+10x+7=0$
$(3x+7)(x+1)=0$
$3x+7=0$ | $x=-1$
$x=-\frac{7}{3}$

(See graph) ✓