**PMATH 12 – CHAPTER 2 – ABSOLUTE VALUE AND RECIPROCAL FUNCTIONS**

**2.1 Absolute Value Functions**

The **absolute** **value** of any number is its distance from the origin on a number line.

$$\left|5\right|=5 \left|-7\right|=7$$

In general, $\left|a\right|=\{ a if a\geq 0 OR -a if a <0\}$

**Ex 1** Evaluate

1. $\left|4\right|- \left|-6\right|$ b) $5-3\left|2-7\right|$

Absolute Value Function y = $\left|f(x)\right|$ (f(x) can be ANY function)

eg. y = $\left|2x+1\right|$

graph of the basic abs. val. y = $\left|x\right|$ 

Once again **x-intercepts are CRITICAL POINTS** since the graph changes directions.

**Ex 2** Sketch the graph y = $\left|3x+6\right|$

Process

1. if y = 3x + 6, the x-int = -2
2. create a table with points on either side of -2
3. plot the points and connect

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
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|  |  |  |
| --- | --- | --- |
| x  | y = 3x + 6 | y = $\left|3x+6\right|$ |
| -2 |  |  |
| -3 |  |  |
| -4 |  |  |
| -1 |  |  |
| 0 |  |  |

 |  |

Domain

Range

**Homework – p86 #3-7 and multiple choice**