

MEMORIAL UNIVERSITY OF NEWFOUNDLAND

DEPARTMENT OF MATHEMATICS AND STATISTICS

SECTION 1.4

Math 1090 Worksheet

FALL 2026

SOLUTIONS

1. (a) $|7 - 3| = |4| = 4$

(b) $|3 - 7| = |-4| = 4$

(c) $|-3 - 7| = |-10| = 10$

(d) $|8| - |-1| = 8 - 1 = 7$

(e) $|-2 \cdot 4| = |-8| = 8$

(f) $-2 \cdot |4| = -2 \cdot 4 = -8$

(g) $\frac{5}{|-5|} = \frac{5}{5} = 1$

(h) $\frac{|-3 + 3|}{3} = \frac{|0|}{3} = \frac{0}{3} = 0$

(i) $\frac{|-3| + |3|}{3} = \frac{3 + 3}{3} = \frac{6}{3} = 2$

2. (a) First observe that

$$\frac{|-5x|}{x} = \frac{|-5| \cdot |x|}{x} = \frac{5|x|}{x}.$$

If $x > 0$ then $|x| = x$ so

$$\frac{|-5x|}{x} = \frac{5x}{x} = 5.$$

(b) This time, since $x < 0$, we know that $|x| = -x$, so

$$\frac{|-5x|}{x} = \frac{5|x|}{x} = \frac{5(-x)}{x} = \frac{-5x}{x} = -5.$$

3. We can write

$$|x + 2| = \begin{cases} x + 2, & \text{for } x + 2 \geq 0 \text{ so } x \geq -2 \\ -(x + 2), & \text{for } x + 2 < 0 \text{ so } x < -2 \end{cases}$$

In this case, the given information tells us that $|x + 2| = -(x + 2)$ so

$$x - |x + 2| = x - [-(x + 2)] = x + (x + 2) = 2x + 2.$$