

## Worksheet # 1: Review

1. Find the equation of the line that passes through  $(1, 2)$  and is parallel to the line  $4x + 2y = 11$ . Put your answer in  $y = mx + b$  form.
2. Find the slope,  $x$ -intercept, and  $y$ -intercept of the line  $3x - 2y = 4$ .
3. Write the equation of the line through  $(2, 1)$  and  $(-1, 3)$  in point slope form.
4. Write the equation of the line containing  $(0, 1)$  and perpendicular to the line through  $(0, 1)$  and  $(2, 6)$ .
5. The quadratic polynomial  $f(x) = x^2 + bx + c$  has roots at  $-3$  and  $1$ . What are the values of  $b$  and  $c$ ?
6. Let  $f(x) = Ax^2 + Bx + C$ . If  $f(1) = 3$ ,  $f(-1) = 7$ , and  $f(0) = 4$  what are the values of  $A$ ,  $B$  and  $C$ ?
7. Find the intersection of the lines  $y = 5x + 10$  and  $y = -8x - 3$ . Remember that an intersection is a point in the plane, hence an ordered pair.
8. Recall the definition of the absolute value function:

$$|x| = \begin{cases} x & \text{if } x \geq 0 \\ -x & \text{if } x < 0 \end{cases}.$$

Sketch the graph of this function. Also, sketch the graphs of the functions  $|x + 4|$  and  $|x| + 4$ .

9. A ball is thrown in the air from ground level. The height of the ball in meters at time  $t$  seconds is given by the function  $h(t) = -4.9t^2 + 30t$ . At what time does the ball hit the ground (be sure to use the proper units)?
10. True or False:
  - (a) For any function  $f$ ,  $f(s + t) = f(s) + f(t)$ .
  - (b) If  $f(s) = f(t)$  then  $s = t$ .
  - (c) A circle can be the graph of a function.
  - (d) A function is a rule which assigns exactly one output  $f(x)$  to every input  $x$ .
  - (e) If  $f(x)$  is increasing then  $f(-52.55) \leq f(1752.0001)$ .