

# WS #1 : Solutions

Math 109 College Algebra  
Lecturer: Calvin Hotchkiss  
Participation Written Assignment 1

Fall 2024  
TA: Samir Donmazov

Indicate which group member is taking on which of the following four roles. You will switch roles on the next recitation day.

- Reader: Reads the problem to the group and makes sure everyone understands.
- Spokesperson: presents the work and asks questions to the TA.
- Recorder: writes everyone's names and the group's work on the worksheet.
- Timekeeper: keeps track of time.

Reader's name: \_\_\_\_\_

Spokesperson's name: \_\_\_\_\_

Recorder's name: \_\_\_\_\_

Timekeeper's name: \_\_\_\_\_

**Part 1** Get to know your groupmates. Determine:

✓ (1) One interesting thing you all have in common.

✓ (2) One interesting thing that is different for each of you.

**Part 2**

(1) Find the **x-intercept(s)** and **y-intercept** of the graph of  $y + 6 = 3(x + 7)$ .

$$\text{x-intercept: } y = 0 \Rightarrow 6 = 3(x + 7) \Rightarrow \frac{6}{3} = \frac{3}{3}(x + 7)$$

$$\Rightarrow 2 = x + 7 \Rightarrow x = -5$$

$$\text{y-intercept: } x = 0 \Rightarrow y + 6 = 3 \cdot 7 = 21 \Rightarrow y = 15$$

(2) Explain in your own words **the definition of ...**

(a) An  $x$ -intercept

is the point at which the graph of the function intersects the  $x$ -axis.

(b) A  $y$ -intercept.

" . . . " intersects the  $y$ -axis.

(3) Explain in your own words **how to find ...**

(a) An  $x$ -intercept

Set  $y=0$  and solve the equation for  $x$

(b) A  $y$ -intercept

Set  $x=0$  and solve the equation for  $y$ .

(4) Find the  **$x$ -intercept(s)** and  **$y$ -intercept** of  $y = x^2 - 7$ .

$$x\text{-int.} : y=0 = x^2 - 7 \Rightarrow x^2 = 7 \Rightarrow x = \pm\sqrt{7}$$

$$y\text{-int.} : x=0 \Rightarrow y = -7.$$

(5) Simplify each exponent. Write all exponents as positive numbers, not as roots.

(a)  $x^3x^5 = x^8$

(c)  $x^3(x^{1/3}) = x^{3+1/3} = x^{10/3}$

(b)  $\frac{x^4 + x^3}{x^5} = \frac{x^4}{x^5} + \frac{x^3}{x^5}$

(d)  $(x^3)^4 = x^{12}$

$$= x^{-1} + x^{-2}$$