Topics and Practice Problems for Algebra (MALG) Placement Test

General Information: The exam consists of 32 multiple choice questions. Problems generally fall into one of 3 categories – simplify, solve, or identify. The problems below are representative of those on the exam, but the list is not necessarily complete. The wording of the actual problems may vary slightly.

Simplify

- $2 - (3 - 4(-7 + 10)) =$

- $\sqrt{\dfrac{49}{9} w^4 t^{10}} =$

- $12y - 3(x - y) + 2x =$

- $(2x^2 y^3)(-4xy^{-9}) =$

- $\dfrac{7}{7 - \frac{1}{2}} =$

- $\dfrac{20a^3 b - 12a^2 b^4}{4ab} =$

- $\dfrac{3^2 + 2^3}{3^0 + 2^1} =$

- Rationalize $\dfrac{7}{\sqrt{17}}$

- $\dfrac{x^2 - 9}{3x} \cdot \dfrac{5}{2x - 6} =$

- $\left(\dfrac{2}{3}\right)^{-3} =$

- $8^{1/3} \cdot 25^{3/2} =$

- Write $f(x + h)$ if $f(x) = \dfrac{\sqrt{x^2 + 1}}{x + 1}$

- $(i + i)(1 - i) =$

Solve

- $\dfrac{1 + 3y}{2y} = 7$

- Let $B = \dfrac{4}{7}C + \dfrac{13}{14}$. Find C if $B = 21$.

- $| - 2u| = 6$

- $\dfrac{1}{p + 1} + 6 = \dfrac{p}{p + 1}$

- $3x^2 - x - 12 = 0$

- $3 - 4x < 6x - 7$

- $|2 - x| < 5$

- $x^2 + 4x = 5$

- Find $f(-2)$ if $f(x) = \dfrac{3 - x}{2 + 2x}$

- Solve the system of equations for x and y:

$$\begin{aligned} 2x - y &= 1 \\ x + 4y &= 13 \end{aligned}$$

- $5^x = 6$

Identify

- Identify the graph of $x - y = 4$ from a set of 4 choices.

- Identify the graph of $y = (x+1)^2 - 3$ from a set of 4 choices.

- Identify the graph of the system of equations from a set of 4 choices:

$$\begin{aligned} 2x + y &= 2 \\ -x + y &= 3 \end{aligned}$$