N: D: P: 1 2 3 4 5 6

Algebra 2 // **BM 2 Exam Review A** Topics 1-4

Directions: Calculators are not allowed. Express any negative square roots in terms of i. *Use separate sheets of paper to show work.*

A2-1 1) Solve for x. $|3x-2| = 10$

A2-1 2) Solve for x. $|5-2x| \leq 1$

A2-1 3) Find the solution set to the inequality $\left|\frac{3x-1}{4}\right| \geq 2$.

A2-1 4) Sketch the interval in the real number line that is the solution for $|x+3| < 5$.

A2-2 5) Solve the system $\begin{cases} y = 2x-1 \\ 4x-y = 7 \end{cases}$ for x only.

A2-2 6) Solve the system $\begin{cases} -3x-2y = -14 \\ 2x-y = 7 \end{cases}$ for x only.

A2-2 7) Find the solution to the following system of equations: $\begin{cases} 2x+3y-z = -4 \\ 3x-y+z = 7 \\ 4x+6y-2z = 4 \end{cases}$

A2-2 8) Solve the following system of equations for x only: $\begin{cases} 3x+z = 9 \\ 2y+3z = 7 \\ x-2y = 4 \end{cases}$

A2-2 9) Carnations cost \$6 a bunch, and daisies cost \$2 a bunch. If Luis buys 20 bunches of these flowers and spends \$52, how many bunches of carnations did Luis buy?

A2-2 10) Solve the following system graphically: $\begin{cases} 2x-4y = 4 \\ y = -x+2 \end{cases}$

$$\begin{cases} y \geq \frac{1}{3}x+2 \\ y \geq -x+3 \\ y \leq 3 \end{cases}$$

A2-2 11) Solve the following system of inequalities:

A2-6 12) If $i = \sqrt{-1}$, find $6i(3i)$.

A2-6 13) What is the product of the complex number $(5 + i)$ and $(5 – i)$.

A2-5 14) If $i = \sqrt{-1}$, what is the value of i^{12}?

A2-6 15) Find the sum: $(5 – 2i) + (1 + 10i)$

A2-6 16) Find the difference: $(2 + 6i) – (3 – 2i)$

A2-6 17) Simplify $\frac{3}{6+i}$. Express your answer as a single fraction.

A2-6 18) Write $\frac{3+i}{5+2i}$ in the form of a + bi, where a and b are real numbers.

A2-5 19) If i = $\sqrt{-1}$, graph the complex number -3 + 2i.

A2-8 20) What are the solutions to the equation $x^2 + 2x + 5 = 0$?

A2-8 21) What are the solutions to the equation $2x^2 - 5 = 45$?

A2-8 22) What are the solutions to the equation $x^2 + 81 = 0$?

A2-8 23) What are the solutions to the equation $x^2 = 6x$?

A2-10 24) What are the x-intercepts of the graph of $y = 10x^2 + x - 3$?

A2-10 25) What are the zeros of the function f(x) = $x^2 - 4x - 21$?

A2-8 26) Find two numbers with the following properties.

1) The second number is 5 more than the first number.
2) The product of the two numbers is 1 less than their sum.

A2-10 27) Determine the minimum value of the function f(x) = $5(x+4)^2 - 2$.

A2-10 28) What is the minimum point of y = $x^2 - 2x + 3$?

A2-9 29) Find the vertex point of the graph $y = -2(x-4)^2 - 7$.

A2-9 30) How does the value of "a" affect the thickness of the graph of $y = ax^2$ as compared to the graph of $y = x^2$?

A2-9 31) Describe the translation of the graph of $y = (x+3)^2 + 2$ to the graph of $y = (x-2)^2 - 1$.

A2-9 32) Which of the following sentences is true about the graphs of $y = 3(x+4)^2 - 1$ and $y = 8(x+4)^2 - 1$?

A) Their vertices are minimums.
B) The graphs have the same shape with different vertices.
C) The graphs have different shapes with different vertices.
D) One graph has a vertex that is a maximum, while the other graph has a vertex that is a minimum.

A2-9 33) The function f(x) = $(x-b)^2 + c$ is a parabola that opens upward with a minimum at the vertex point (5, -2). Use this information to find the constants b and c.

A2-10 34) Write the equation y = $4x^2 - 16x - 1$ in the completed square form: $y = a(x-h)^2 + k$

A2-10 35) Sketch a graph of $y = -4(x+3)^2 - 5$.