

GLENELG HIGH SCHOOL

Functions and Trigonometry

Summer Pre-View Packet

**DUE THE FIRST WEEK OF
SCHOOL**

The problems in this packet are designed to help you review topics from previous mathematics courses that are important to your success in

Functions and Trigonometry

Show all work that leads you to each solution on separate sheets of paper. You may use your notes from previous mathematics courses to help you. Additional copies of this packet may be obtained from the Main Office in your school or printed from the school's website.

ALL work should be completed and ready to turn in on the FIRST WEEK of school. This packet will count as part of your first quarter grade.

**ENJOY YOUR SUMMER!! WE ARE LOOKING
FORWARD TO SEEING YOU IN THE FALL.**

Student Name: _____

School: _____

Date: _____

HSA ALGEBRA/DATA ANALYSIS FORMULAS

Equations of a Line
Standard Form: $Ax + By = C$ where A and B are not both zero
Slope-Intercept Form: $y = mx + b$ or $y = b + mx$ where $m = \text{slope}$ and $b = y\text{-intercept}$
Point-Slope Form: $y - y_1 = m(x - x_1)$ where $m = \text{slope}$, $(x_1, y_1) = \text{point on line}$

Slope Formula
Let (x_1, y_1) and (x_2, y_2) be two points in the plane.
$\text{slope} = \frac{y_2 - y_1}{x_2 - x_1} \text{ where } x_2 \neq x_1$

Name _____

SHOW ALL WORK ON A SEPARATE SHEET OF PAPER.

I. Solve for x:

1) $-4(3 - x) = 8$

2) $3x - 2(x + 1) = 0$

II. Solve the following system of equations:

1) $-2x + y = 8$
 $y = -3x - 2$

III. Factor each of the following polynomials:

1) $x^2 - x - 72$

2) $a^2 - 10a + 24$

3) $10m^3n^2 - 15m^2n$

4) $x^2 + 12x + 36$

5) $x^2 - 64$

IV. Solve the following quadratic equations:

1) $(x + 1)(x + 3) = 0$

2) $p^2 + 6p = 0$

V. Determine each of the following:

1) Write an expression for the perimeter of a rectangle with length $l = 2x + 3$ and width $w = x - 2$

2) Write an expression for the area of a square with side $s = 2x + 5$

3) Find the diagonal of a rectangle with $l = 40$ and $w = 55$.

4) The length of each leg of an isosceles right triangle is 4 cm. What is the length of the hypotenuse?

GLENELG Functions and Trigonometry Summer Review

VI. Simplify each of the following:

1) $(-3x^2 + 4x - 7) + (2x^2 - 7x + 8)$ 2) $(-4a^3 + 2a^2 - a - 7) - (3a^3 - 2a^2 - a + 8)$

3) $(x + 7)(x + 5)$ 4) $-3xy^3(x - 2y)$ 5) $(15a^4b^2c)^0$

6) $(8a^3b^2)(2a^{-4}b^5)$ 7) $(-3x^2y^3z)^3$ 8) $\frac{3x^3y^2}{6x^{-2}y^5}$ 9) $(x + 6)^2$

VII. Graph each of the following on graph paper or create your own grid.

1) $y = -\frac{3}{4}x + 4$ 2) $y = -3x$

VIII. Given the following **matrices**,

$$A = \begin{bmatrix} 6 & -3 \\ 2 & 1 \end{bmatrix} \quad B = \begin{bmatrix} 5 & 6 \\ 2 & -1 \end{bmatrix} \quad C = [0 \ 5]$$

determine

1) $A + B$ 2) $A - B$ 3) $-2C$

IX. Answer each of the following concerning **linear** equations.

- 1) Determine the slope of the line containing the points (6, -2) and (-1, 5).
 - 2) Determine an equation for a line with slope $\frac{1}{2}$ and y-intercept at (0, -3).
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X. Solve each **inequality** and **graph** on a **number line**.

1) $|x - 3| > 5$ 2) $-3 \leq x < 1$