

## 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. You may use a calculator for all problems, unless otherwise indicated.

ALL work should be completed and ready to turn in by the end of the FIRST WEEK of school. You will be assessed on this material!

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

**HSA ALGEBRA/DATA ANALYSIS FORMULAS**

<b>Equations of a Line</b>
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 $b = \text{y-intercept}$
Point-Slope Form: $y - y_1 = m(x - x_1)$ where $m = \text{slope}$ , $(x_1, y_1) = \text{point on line}$

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

**SHOW ALL WORK ON A SEPARATE SHEET OF PAPER.**

**Solve each equation.**

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

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

3.  $7(x - 3) = 5(x + 9)$

4.  $|x - 3| > 5$

5.  $|x - 3| > 5$

6.  $|x - 3| > 5$

**Solve each system of equations.**

7. 
$$\begin{cases} y = -3x - 2 \\ -2x + y = 8 \end{cases}$$

8. 
$$\begin{cases} 3x + 4y = -4 \\ x + 2y = 2 \end{cases}$$

9. 
$$\begin{cases} 3x + 2y + 4z = 11 \\ 2x - y + 3z = 4 \\ 5x - 3y + 5z = -1 \end{cases}$$

**Factor each polynomial completely.**

10.  $x^2 - x - 72$

11.  $a^2 - 10a + 24$

12.  $10m^3n^2 - 15m^2n$

13.  $x^2 + 12x + 36$

14.  $x^2 - 64$

15.  $25x^2 - 49y^2$

**Solve each quadratic equation. Leave answers in simplest radical form when necessary.**

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

17.  $p^2 + 6p = 0$

18.  $x^2 - 12x = 28$

19.  $2x^2 - 11x = -15$

20.  $3x^2 + 4x = 3$

21.  $2x^2 - 1 = 5x$

**Determine each of the following:**22. Write an expression for the perimeter of a rectangle with length  $l = 2x + 3$  and width  $w = x - 2$ .23. Write an expression for the area of a square with side  $s = 2x + 5$ .24. Find the diagonal of a rectangle with  $l = 40$  and  $w = 55$ .

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

**Simplify each polynomial expression.**

26.  $(-3x^2 + 4x - 7) + (2x^2 - 7x + 8)$

27.  $(-4a^3 + 2a^2 - a - 7) - (3a^3 - 2a^2 - a + 8)$

28.  $(x+7)(x+5)$

29.  $-3xy^3(x-2y)$

30.  $(15a^4b^2c)^0$

31.  $(8a^3b^2)(2a^{-4}b^5)$

32.  $\frac{3x^3y^2}{6x^{-2}y^5}$

33.  $(x+6)^2$

34.  $\frac{6^2u^3v^{-3}}{12u^{-2}v}$

35.  $\frac{x^2 - 64}{5x + 40}$

**Graph each on graph paper.**

36.  $y = \frac{-3}{4}x + 4$

37.  $y = -3x$

38.  $2x - 3y = 6$

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

39. Determine the slope of the line containing the points (6, -2) and (-1, 5).

40. Determine an equation for a line with slope  $\frac{1}{2}$  and y-intercept at (0, -3).**Solve each inequality and graph the solution set.**

41.  $-3 \leq x < 1$

42.  $|x - 3| > 5$

43.  $2x - 5y \geq 10$

**Simplify each expression.**

44.  $5^{\frac{1}{4}} \cdot 5^{-\frac{9}{4}}$

45.  $\left(100^{\frac{1}{3}}\right)^{\frac{3}{4}}$

46.  $\sqrt[3]{\frac{16}{1000}}$

47.  $5\sqrt[3]{17} - 4\sqrt[3]{17}$

48.  $\sqrt[6]{6x^6y^7z^{15}}$

49.  $\sqrt[3]{4a^6} + a\sqrt[3]{108a^3}$

50.  $\sqrt{-32}$

51.  $\sqrt{-72} + 4$

52.  $(4 - 3i)(5 + 2i)$

53.  $(-6i)^2$

54.  $(8i)(4i)(-9i)$

55.  $|1 - 4i|$

**Solve each.**

56.  $\sqrt{x-4} = 6$

57.  $4x^{\frac{2}{3}} = 100$

58.  $\frac{1}{4} - x = \frac{x}{8}$

59.  $\frac{15}{x} + \frac{9x-7}{x+2} = 9$

60.  $x^2 + 25 = 0$

61.  $4x^2 + 10x = -7$

**Use your knowledge of 30, 60, 90 triangles to find the missing sides.**

62. hyp = 6

Short leg =

Long leg =

63. hyp =

short leg =  $2\sqrt{2}$

long leg =

64. hyp =

short leg =

long leg = 4

**Draw a diagram for each and use trig to find the measure of the missing side in a right triangle.**

65.  $\triangle ABC$

$\angle A = 90^\circ$ ,  $\angle B = 26^\circ$ , and

$AB = 22$ . Find  $AC$

66.  $\triangle ABC$

$\angle A = 90^\circ$ ,  $\angle C = 55^\circ$ , and

$AB = 13$ . Find  $BC$

67.  $\triangle ABC$

$\angle A = 90^\circ$ ,  $\angle C = 17^\circ$ , and

$AC = 5$ . Find  $AC$

