

**SUMMER REVIEW PACKET – 2008  
PRECALCULUS**

Name: \_\_\_\_\_  
Per: \_\_\_\_\_ Date: \_\_\_\_\_

The problems in this packet are designed to help you review topics that are important to your success in Precalculus. The problems should be done correctly, not just attempted. You are expected to get each problem correct.

**There will be a quiz on these topics during the first week after we return to school.** You can work with one or more people on the packet, but remember, each person has to take the quiz on their own! Have a great summer!

Solve all work, neatly and in an organized fashion, on lined paper. (Graphs may be completed on this page.)

I. Solve for  $x$ , where  $x$  is a real number. Show your work!

1.  $x^2 + 3x - 4 = 14$

4.  $2x^2 + 5x = 8$

2.  $6x^2 - 5x = 4$

5.  $3x^2 = 12x$

3.  $(x - 5)^2 = 9$

6.  $4x^2 - 3 = 0$

II. Solve for  $z$  :

7.  $4x + 10yz = 0$

8.  $y^2 + 3yz - 8z - 4x = 0$

III. For each function, determine its **domain** and **range**.

Function:	Domain:	Range:
9. $y = \sqrt{x - 4}$	_____	_____
10. $y = \sqrt{x^2 - 4}$	_____	_____
11. $y = \sqrt{4 - x^2}$	_____	_____
12. $y = \sqrt{x^2 + 4}$	_____	_____

IV. Given the functions:  $f(x) = \{(3,5), (2,4), (1,7)\}$   $g(x) = \sqrt{x - 3}$  determine:

$h(x) = \{(3,2), (4,3), (1,6)\}$   $k(x) = x^2 + 5$

13.  $h(4) =$  \_\_\_\_\_

14.  $g(52) =$  \_\_\_\_\_

15.  $f(h(3)) =$  \_\_\_\_\_

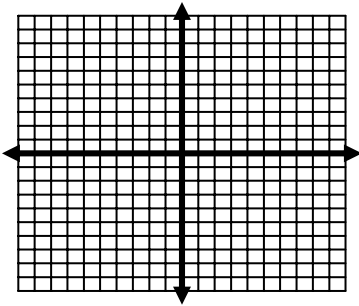
16.  $g(k(7)) =$  \_\_\_\_\_

17.  $g(k(x)) =$  \_\_\_\_\_

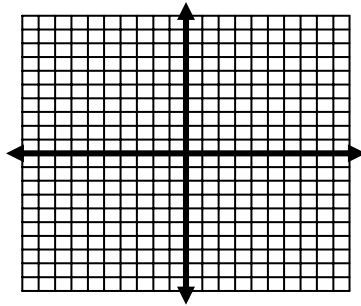
18.  $k(g(x)) =$  \_\_\_\_\_

V. Graph each function. Give its domain and range.

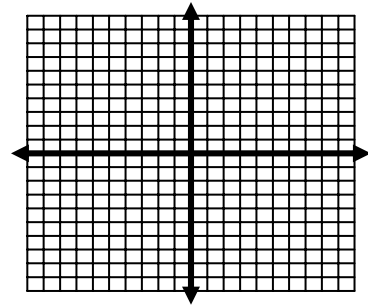
19.  $y = x^3$   
 Domain \_\_\_\_\_  
 Range \_\_\_\_\_



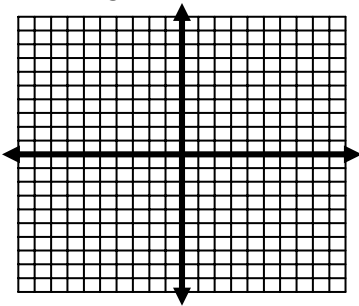
20.  $y = \sqrt{x}$   
 Domain \_\_\_\_\_  
 Range \_\_\_\_\_



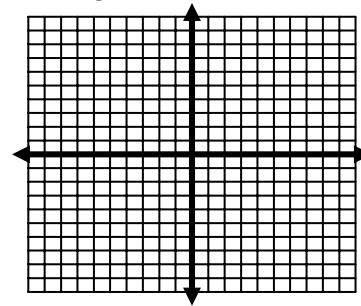
21.  $y = e^x$   
 Domain \_\_\_\_\_  
 Range \_\_\_\_\_



22.  $y = \ln x$   
 Domain \_\_\_\_\_  
 Range \_\_\_\_\_



23.  $y = \frac{1}{x}$   
 Domain \_\_\_\_\_  
 Range \_\_\_\_\_



VI. Simplify . Show your work.

24.  $\frac{x-4}{x^2-3x-4}$

25.  $\frac{x^3-8}{x-2}$

26.  $\frac{x-5}{x^2-25}$

27.  $\frac{x^2-4x-32}{x^2-16}$

VII. Exponents and Logarithms. Simplify and evaluate where appropriate.

28.  $27^{\frac{2}{3}}$

29.  $\left(5a^{\frac{2}{3}}\right)\left(4a^{\frac{3}{2}}\right)$

30.  $\left(4a^{\frac{5}{3}}\right)^{\frac{3}{2}}$

31.  $\frac{x^3x^{-5}}{x^{-4}}$

Solve for  $x$ .

32.  $\log_5(3x+1)=2$

33.  $\log_3(5x-1)=\log_3(x+7)$

34.  $\log 5x + \log(x-1)=2$

35.  $\ln e^7 = x$