Pre-Calculus
Midterm Exam Review MR 3

Assg.# Key

Name__________________ Date__________ Per______

Show all the work clearly on a separate paper.

(1-8) Simplify:

1) $e^{\ln 3}$ 2) $\ln 1$ 3) $\ln e^7$ 4) $\log_3 \frac{1}{3}$ 5) $e^{3\ln x}$

6) $\log_{1/2} 8$ 7) $\left(5a^{2/3}\right)\left(4a^{3/2}\right)$ 8) $\dfrac{4xy^{-2}}{12x^{\frac{1}{3}}y^{-5}}$

(9-11) Solve for x (over the real numbers)

9) $x^2+3x-4=14$ 10) $\dfrac{x^4-1}{x^3}=0$ 11) $(x-5)^2=9$

(12-15) Write an equation for the line:

12) with slope -2, containing the point (3,4) in slope intercept form.

13) Perpendicular to the line in problem 12, containing the point (4,3) in standard form.

14) Parallel to the line in problem 12, containing the point $(-2,-5)$ in point-slope form.

15) In standard form for the line passing through (-2,6) and (8, -9).

16) Find any VA, HA, or SA for the function $f(x)=\frac{5x^3-2x^2+5x-3}{x^2+2x-15}$

17) Find the intervals when this function is increasing and/or decreasing: $f(x)=3(x-3)^2-10$

18) Solve over the Real Numbers: $\sqrt{x-11}=x+5$

19) Given: $f(x)=x^2-3$ and $g(x)=\frac{x+6}{x}$ find $(g°f)(6)$

20) Use the Remainder and factor theorems to find all the zeros of: $f(x)=x^4-6x^2-8x+24$

21) Express $x^{\frac{4}{5}}y^{\frac{1}{2}}$ using radicals.

22) Given $f(x)=3x^6$, find its inverse.

23) Given $g(x)=\frac{x^2+5}{3x}$, find $g(p+4)$

24) Determine the end behavior for $f(x)=-x^3+3-5x^5$

25) Determine the domain and range over the Real Numbers for: $y=\sqrt{x^2-4}$

9)	$x=-6, 3$
10)	$x=\pm 1$
11)	$x=2, 8$
12)	$y=-2x+10$
13)	$x-2y=-2$ OR $x-2y+2=0$
14)	$y+5=-2(x+2)$
15)	$3x+2y=6$ OR $3x+2y-6=0$
16)	VA: $x=-5, x=3$; HA: NONE; SA: $y=5x-12$
17)	Dec.: $(-\infty,3)$; Inc.: $(3,\infty)$
18)	NO SOLUTION
19)	$\frac{13}{11}$
20)	$x=2, -2\pm i\sqrt{2}$
21)	$\sqrt[10]{x^8y^5}$
22)	$y^{-1}=\left(\frac{x}{3}\right)^{1/6}$
23)	$\frac{p^2+8p+21}{3p+12}$
24)	as $x\to\infty$, $f(x)\to-\infty$; as $x\to-\infty$, $f(x)\to\infty$
25)	Domain: $(-\infty,-2]\cup[2,\infty)$; Range: $[0,\infty)$