Review Exam

Name and Period:_____

Question	Points	Bonus Points	Score
1	10	0	
2	10	0	
3	20	0	
4	15	0	
5	15	0	
6	20	0	
7	10	0	
Total:	100	0	

1. (10 points) Evaluate.

(a) $\left(-\frac{1}{2}\right)^4$

(b) -2^4

(c) $8^{-\frac{4}{3}}$

(d) $\frac{(n^3p)^2}{(np)^{-2}}$

(e) $\frac{6x^{-2}y^3}{12x^2y^3}$

2. (10 points) Write the equation given the following descriptions:

   (a) The equation of a line going through $(-3, 5)$ and with slope -4.

   (b) The equation of a line going through $(-3, 5)$ and perpindicular to $2x - 4y = 3$

3. (20 points) Simplify.

(a) $\dfrac{\dfrac{1}{x}-\dfrac{1}{y}}{\dfrac{1}{y}-\dfrac{3}{x}}$

(b) $\dfrac{\left(\dfrac{m+1}{m^2-4}\right)}{\left(\dfrac{m-2}{m+2}\right)}$

4. (15 points) Factor.

(a) $9x^2y^2 - 25$

(b) $x^4 + 27x$

(c) $6x^2 + 15x - 21$

5. (15 points) If

$$f(x) = \begin{cases} 3 - x^2 & \text{if } x \leq 0 \\ 3x - 5 & \text{if } x > 0 \end{cases}$$

and $g(x) = -3x^2 + 7$

(a) $f \circ g$ when $x \leq 0$

(b) $g \circ f$ when $x < 0$

(c) $g \circ g \circ g$

6. (20 points) Evaluate and fully simplify your solutions.

(a) $\tan\left(-\frac{\pi}{4}\right) + \tan^{-1}\left(\sqrt{3}\right)$

(b) $\sin\left(\frac{\pi}{6}\right) + \sin^{-1}\left(\sin\left(\frac{1}{2}\right)\right)$

(c) $\cos^2\left(\frac{27\pi}{4}\right) + \sin^2\left(\frac{27\pi}{4}\right) =$

(d) $\cos^{-1}\left(\sin\left(\frac{\pi}{4}\right)\right) + \sin^{-1}\left(\cos\left(-\frac{\pi}{3}\right)\right) =$

(e) If $\sin x = \frac{3}{5}$ and $\sec y = \frac{5}{13}$ when x and y are in Quadrant I, then evaluate $\cos(x+y)$

(f) $\sin(3\theta) =$

7. (10 points) Separate into parts:

$$\frac{3x}{(x+2)(x-1)}$$