Name_____Date_____

Ch 2 Review 1

Find the limit

1. $\lim_{x\to 1} \left(-x^2+1\right)$

2. $\lim_{x\to 1} \left(3x^2-2x^2+4\right)$

3. $\lim_{x\to 3} \dfrac{\sqrt{x+1}}{x-4}$

4. $\lim_{x\to \pi} \cos 3x$

5. $\lim_{x\to -1} \dfrac{x^2-1}{x+1}$

6. $\lim_{x\to -1} \dfrac{2x^2-x-3}{x+1}$

7. $\lim_{x\to -2} \dfrac{x^3+8}{x+2}$

8. $\lim_{x\to 5} \dfrac{x-5}{x^2-25}$

9. $\lim_{x\to -4} \dfrac{\sqrt{x^2+9}-5}{x+4}$

10. $\lim_{x\to 3} \dfrac{\sqrt{x+1}-2}{x-3}$

Investigate vertical asymptotes

11. $\lim_{x\to -3^+}\left(\frac{x+2}{x+3}\right)$

$\lim_{x\to -3^-}\left(\frac{x+2}{x+3}\right)$

12. $\lim_{x\to 0^-}\left(\frac{1}{x}-\frac{1}{|x|}\right)$

$\lim_{x\to 0^+}\left(\frac{1}{x}-\frac{1}{|x|}\right)$

13. $\lim_{x\to 5^-}\frac{e^x}{(x-5)^3}$

14. $\lim_{x\to \pi^-}\cot x$

Does the limit exist?

15. $f(x)=\begin{cases}\frac{x+2}{2}, & x\le 3\\ \frac{12-2x}{3}, & x>3\end{cases}$

$\lim_{x\to 3} f(x)$

16. $f(x)=\begin{cases}x^3+1, x<1\\ x+1, x\ge 1\end{cases}$

$\lim_{x\to 1} f(x)$