

Chapter 17 and Chapter 3

Review

Kow# _____
Name _____

Directions: Work on lined paper.

1. $\lim_{x \rightarrow 3} \frac{x^2 - 9}{x^3 - 27}$
2. $\lim_{x \rightarrow 1} \frac{x^2 - 2x + 3}{3x^2 - 5}$
3. $\lim_{x \rightarrow \infty} \frac{(x-2)(x+1)}{x^2}$
4. $\lim_{x \rightarrow 4} \sqrt{x} (x-1)^2$
5. $\lim_{x \rightarrow 0} \frac{\sin(-2x)}{3x}$
6. $\lim_{x \rightarrow 1} \frac{x-1}{x^3-1}$

Evaluate the limit of $f[g(x)]$ as x approaches 1 for

$$f(x) = x^3$$

$$g(x) = 3x^2$$

8. $f(x) = 4x^3 - 4$, $f'(x) =$
9. $f(x) = (x+3)^2$, $f'(x) =$
10. $f(x) = 6(x^4 - 5)$, $f'(x) =$
11. $f(x) = (2x^4)(x^3 + 3x^2)$, $f'(x) =$
12. $f(x) = \frac{2x}{1+x^2}$, $f'(x) =$
13. $f(x) = \sqrt{4x^2 - 1}$, $f'(x) =$

14. Sketch & find area using Riemann sum, left-hand endpoints
4 sub-divisions.
 $y = x^3$ 1 to 2

15. Sketch & find area using Riemann sum, midpoint
4 sub-divisions 0 to 2.
 $y = 3x^2$

16. Find the equation of tangent line
Write in slope intercept form
 $y = x^2 - 4x + 1$, Pt = (1, -2)

17. Find the equation of tangent line.
Write in point slope form.
 $y = 3x^2 - 2x + 1$, Pt = (2, 9)

18. Find the critical points
Justify by 1st & 2nd Derivative Tests.
 $y = x^2 - 8x + 4$

19. Find the critical points
Justify by 1st & 2nd Derivative Tests
 $y = -x^3 - 3x^2 + 3$

20. $f(x) = 3x^{-2/3}$
 $f'(x) =$
(No negative exponents)

21. $f(x) = (4x^3)(2x-3)^{-4}$
 $f'(x) =$
(Use Product Rule)