

CW on 7.5 - 7.7

Evaluate the following indefinite integrals.

$$(11) \int \frac{2-x}{x^2+5x} dx$$

$$(12) \int \frac{x^2-1}{x^2-16} dx$$

$$(13) \int \frac{x^4+x^3+x^2+1}{x^2+x-2} dx$$

$$(14) \int \frac{x^2+x-1}{x(x^2-1)} dx$$

$$(15) \int \frac{x+7}{x^2(x+2)} dx$$

$$(16) \int \frac{x^5+1}{x^3(x+2)} dx$$

$$(17) \int \frac{2x-1}{x^2-x-6} dx$$

$$(18) \int \frac{3x+11}{x^2-x-6} dx$$

L'Hopital's Rule

$$1. \lim_{x \rightarrow 2} \left(\frac{3x^2 - 7x + 2}{x - 2} \right)$$

$$2. \lim_{x \rightarrow 3} \frac{x+3}{\sqrt{x^2-5}-2}$$

$$3. \lim_{x \rightarrow -2} \frac{x^3 + x^2 - 8x - 12}{x^3 + 8x^2 + 20x + 16}$$

$$4. \lim_{x \rightarrow 5} \left(\frac{3x^4 - 41x^3 + 165x^2 - 75x - 500}{x^4 - 20x^3 + 150x^2 - 500x + 625} \right)$$

$$5. \lim_{x \rightarrow 1} \left(\frac{\ln x - x + 1}{x^4 - x} \right) =$$

$$6. \lim_{x \rightarrow 0} \frac{e^x + x - 1}{1 - e^{-x}}$$

$$7. \lim_{x \rightarrow 0} \left(\frac{x^2 \sin x + \cos x - 1}{x} \right)$$

$$8. \lim_{x \rightarrow 0} \left(\frac{4^{2x} + \sin x - 1}{\tan x + \sin x} \right)$$

$$9. \lim_{x \rightarrow \infty} \frac{2x^3 - 4x^2 - 5x - 2}{3x^3 - 12}$$

$$10. \lim_{x \rightarrow \infty} \frac{4x^2 - 5x + 2}{e^{5x} + \ln x}$$

$$11. \lim_{x \rightarrow \infty} \frac{\sqrt{x^2} - 1}{x}$$

$$12. \lim_{x \rightarrow 0^+} x^2 \ln x$$

$$13. \lim_{x \rightarrow \infty} x \sin \left(\frac{1}{x} \right)$$

$$14. \lim_{x \rightarrow \frac{\pi}{2}} [\sec x - \tan x]$$

$$15. \lim_{x \rightarrow 0} \left[\frac{1}{e^x - 1} - \frac{1}{x} \right]$$

$$16. \lim_{x \rightarrow \infty} x^{1/x}$$

$$17. \lim_{x \rightarrow \infty} \left(1 + \frac{1}{x} \right)^x$$