

Worksheet 2: Indeterminate Form (Lesson 2.6)

Evaluating Limits Indeterminate Form

- ✓ *Lowest common denominator*
- ✓ *factoring*
- ✓ *Square root*
- ✓ *Difference of cubes (formula)*

Evaluate the following limits:

a) $\lim_{x \rightarrow 2} \left[\frac{\frac{1}{x+1} - \frac{1}{3}}{x-2} \right]$

b) $\lim_{x \rightarrow 0} \frac{(2-x)^{-1} - 2^{-1}}{x}$

c) $\lim_{h \rightarrow 2} [(h+5)(h+2)^{-1} + 21(h^2 - 3h - 10)^{-1}]$

d) $\lim_{x \rightarrow -1} [7(x^2 + 3x + 2)^{-1} - (x + 8)(x + 1)^{-1}]$

e) $\lim_{x \rightarrow 0} \left(\frac{1}{x} - \frac{1}{x^2 + x} \right)$

$$\text{f) } \lim_{x \rightarrow -3} \left(\frac{6}{x^2 - 9} - \frac{1}{x^2 + 5x + 6} \right)$$

$$\text{g) } \lim_{x \rightarrow -4} \frac{2x^2 + 7x - 4}{x^3 + 6x^2 + 9x + 4}$$

h) $\lim_{h \rightarrow 0} \frac{(2+h)^3 - 8}{h}$

i) $\lim_{x \rightarrow -4} \frac{\sqrt{x^2 + 9} - 5}{x + 4}$

j)
$$\lim_{x \rightarrow 3} \frac{6 + x - x^2}{\sqrt{5x - 6} - \sqrt{x + 6}}$$

k)
$$\lim_{x \rightarrow 0} \frac{\sqrt{x + 1} - 1}{2 - \sqrt{4 - x}}$$