

LESSON 1.6 A

USING LIMIT LAWS

WARM UP

TRUE / FALSE

Given $f(x) = \frac{x^2 - 4}{x - 2}$ and $g(x) = x + 2$, we

can say the functions f and g are equal.

Explain your reasoning!

PROBLEM

Attempt paper/pencil methods to determine these limits.

$$(a) \lim_{t \rightarrow 1} \frac{t^2 + t + 2}{t + 1}$$

$$(c) \lim_{r \rightarrow 0} \frac{\sqrt{r + 1} - 1}{r}$$

$$(b) \lim_{x \rightarrow -3} \frac{x^2 + x - 6}{x + 3}$$

$$(d) \lim_{x \rightarrow -4} \frac{\frac{1}{4} + \frac{1}{x}}{4 + x}$$

PROBLEM

Consider the following: $\lim_{x \rightarrow 0} \frac{|2x - 1| - |2x + 1|}{x}$

(a) Explain why evaluation of this limit is not straightforward.

(b) Find the limit by any means. (Try to find the limit analytically.)