

1.4-1.5 Limits Practice Problems (Algebraic)

$$1) \lim_{x \rightarrow 2} \frac{4x+3}{3x-6} =$$

$$2) \lim_{x \rightarrow -1} \frac{6x^2+2x-4}{3x+3} =$$

$$3) \lim_{x \rightarrow 2^+} \frac{4x+3}{x-2} =$$

$$4) \lim_{x \rightarrow 2^-} \frac{4x+3}{x-2} =$$

$$5) \lim_{x \rightarrow -1^+} \frac{8x+1}{x+1} =$$

1.4-1.5 Limits Practice Problems (Algebraic)

$$1) \lim_{x \rightarrow 2} \frac{4x+3}{3x-6} = \frac{11}{0} \text{ undefined, (DNE)}$$

$$2) \lim_{x \rightarrow -1} \frac{6x^2+2x-4}{3x+3} = \lim_{x \rightarrow -1} \frac{2(3x^2+x-2)}{3(x+1)} = \lim_{x \rightarrow -1} \frac{2(3x-2)(x+1)}{3(x+1)} \\ = \frac{2(-5)}{3} = \boxed{\frac{-10}{3}}$$

$$3) \lim_{x \rightarrow 2^+} \frac{4x+3}{x-2} = \frac{11}{0} \xrightarrow{\text{DNE}} \frac{4(2.1+3)}{2.1-2} = \frac{+}{+} = \boxed{+\infty}$$

$$4) \lim_{x \rightarrow 2^-} \frac{4x+3}{x-2} = \frac{11}{0} \xrightarrow{\text{DNE}} \frac{4(1.9)+3}{1.9-2} = \frac{+}{-} = \boxed{-\infty}$$

$$5) \lim_{x \rightarrow -1^+} \frac{8x+1}{x+1} = \frac{-7}{0} \xrightarrow{\text{DNE}} \frac{8(-0.9)+1}{-0.9+1} = \frac{-}{+} = \boxed{-\infty}$$