# Calculus Ch 2 More Limit Problems #1

Show ALL Work!

(1) $\lim_{x \to 2} \dfrac{\sqrt{x+2} - 2}{x-2} =$

(2) $\lim_{x \to 1} \dfrac{1-x}{2-\sqrt{x^2+3}}$

(3) $\lim_{h \to 0} \dfrac{\sqrt{h+5} - \sqrt{5}}{h}$

(4) $\lim_{x \to 3} \dfrac{2x^3 - 6x^2 + x - 3}{x-3}$

(5) $\lim_{x \to -3} \dfrac{x+3}{\sqrt{x^2+7} - 4}$

(6) $\lim_{x \to -1} \dfrac{x^4 - 2x - 3}{x+1}$

(7) $\lim_{x \to 2} \dfrac{\sqrt{x+7} - 3}{\sqrt{x+2} - 2}$

(8) $\lim_{r \to 1} \dfrac{r^2 - r}{2r^2 + 5r - 7}$

# Calculus Ch 2 More Limit Problems #2

Show ALL Work!

1. $\lim_{r \to -3} \dfrac{r^2 + 2r - 3}{r^2 + 7r + 12}$

2. $\lim_{K \to 4} \dfrac{K^2 - 16}{\sqrt{K} - 2}$

3. $\lim_{h \to 0} \dfrac{(x+h)^2 - x^2}{h}$

4. $\lim_{h \to -2} \dfrac{h^3 + 8}{h + 2}$

5. $\lim_{x \to -3} \dfrac{x+3}{\frac{1}{x} + \frac{1}{3}}$

6. $\lim_{x \to 25} \dfrac{\sqrt{x} - 5}{x - 25}$

7. $\lim_{h \to 0} \dfrac{1}{h}\left(\dfrac{1}{\sqrt{1+h}} - 1\right)$

8. $\lim_{x \to -2} \dfrac{x^3 + 8}{x^4 - 16}$

Sketch the graph of a single function that satisfies ALL following conditions:

* One graph that meets all conditions below.

(A) $\lim_{x \to \infty} f(x) = 1$

(B) $\lim_{x \to -\infty} f(x) = 2$

(C) $\lim_{x \to -2^-} f(x) = \infty$

(D) $\lim_{x \to -2^+} f(x) = \infty$

(E) $\lim_{x \to 1^-} f(x) = -\infty$

(F) $\lim_{x \to 1^+} f(x) = \infty$

(G) $\lim_{x \to 3^-} f(x) = 2$

(H) $\lim_{x \to 3^+} f(x) = 4$