1. Suppose that

$$\lim_{x\to a} f(x) = -3 \qquad \lim_{x\to a} g(x) = 0 \qquad \lim_{x\to a} h(x) = 8$$

Find the value of the given limit, if it exists.

$a)\lim_{x\to a}\left[f(x)+h(x)\right]$ 　　　　　 $b)\lim_{x\to a}\left[f(x)\right]^3$

$c)\lim_{x\to a}\sqrt[3]{h(x)}$ 　　　　　 $d)\lim_{x\to a}\dfrac{1}{f(x)}$

$e)\lim_{x\to a}\dfrac{f(x)}{h(x)}$ 　　　　　 $f)\lim_{x\to a}\dfrac{g(x)}{f(x)}$

$g)\lim_{x\to a}\dfrac{f(x)}{g(x)}$ 　　　　　 $h)\lim_{x\to a}\dfrac{2f(x)}{h(x)-f(x)}$

2. The graphs of f and g are given. Use them to evaluate each limit, if it exists.

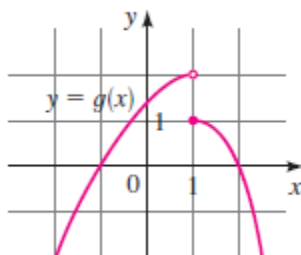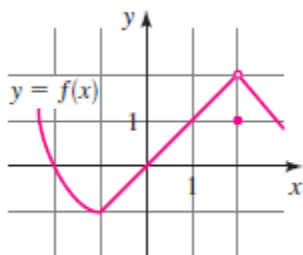(a) $\lim_{x\to 2}\left[f(x)+g(x)\right]$ 　　　 (b) $\lim_{x\to 1}\left[f(x)+g(x)\right]$

(c) $\lim_{x\to 0}\left[f(x)g(x)\right]$ 　　　 (d) $\lim_{x\to -1}\dfrac{f(x)}{g(x)}$

(e) $\lim_{x\to 2}x^3 f(x)$ 　　　 (f) $\lim_{x\to 1}\sqrt{3+f(x)}$

#3-14 Evaluate the limit, if it exists.

3. $\lim_{x\to 4}\left(5x^2 - 2x + 3\right)$

4. $\lim_{x\to -1}\dfrac{x-2}{x^2 + 4x - 3}$

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

6. $\lim_{u\to -2}\sqrt{u^4 + 3u + 6}$

7. $\lim_{x\to 2}\dfrac{x^2 + x - 6}{x - 2}$

8. $\lim_{x\to 1}\dfrac{x^3 - 1}{x^2 - 1}$

9. $\lim_{h\to 0}\dfrac{(2+h)^3 - 8}{h}$

10. $\lim_{x\to 2}\dfrac{x^4 - 16}{x - 2}$

11. $\lim_{h\to 0}\dfrac{(3+h)^{-1} - 3^{-1}}{h}$

12. $\lim_{x\to -4}\dfrac{\frac{1}{4} + \frac{1}{x}}{4 + x}$

13. $\lim_{x\to -1}\dfrac{x^2 - x - 2}{x^3 - x}$

14. $\lim_{x\to 1}\dfrac{x^8 - 1}{x^5 - x}$