I. Find each Limit

1. $\lim\_{x\to 2}\frac{x^{2}-4}{x-2}$

2. $\lim\_{x\to 3}\frac{x^{2}+2x-15}{x-3}$

3. $\lim\_{x\to 4}\frac{x^{2}+2x-24}{x^{2}-2x-8}$

4. $\lim\_{x\to -2}\frac{x^{2}+5x+6}{x^{2}+6x+8}$

5. $\lim\_{x\to 2}\frac{x^{3}-8}{x-2}$

6. $\lim\_{x\to -3}\frac{x^{3}+27}{x+3}$

7. $\lim\_{x\to 1}\frac{x^{3}-1}{x^{2}-1}$

8. $\lim\_{x\to -1}\frac{x^{3}+1}{x^{2}-1}$

9. $\lim\_{x\to 25}\frac{x-25}{\sqrt{x}-5}$

10. $\lim\_{x\to 1}\frac{x-1}{\sqrt{x}-1}$

11. $\lim\_{x\to 9}\frac{\sqrt{x}-3}{x-9}$

12. $\lim\_{h\to 0}\frac{\sqrt{4+h}-\sqrt{4}}{h}$

13. $\lim\_{h\to 0}\frac{\sqrt{25+h}-5}{h}$

14. $\lim\_{h\to 0}\frac{\sqrt{16+h}-4}{h}$

15. $\lim\_{h\to 0}\frac{10-\sqrt{100-h}}{h}$

16. $\lim\_{h\to 0}\frac{\sqrt{x+h}-\sqrt{x}}{h}$

17. $\lim\_{h\to 0}\frac{h}{\sqrt{x}-\sqrt{x-h}}$

18. $\lim\_{x\to 2}\frac{\frac{1}{x}-\frac{1}{2}}{x-2}$

19. $\lim\_{x\to 5}\frac{\frac{1}{x}-\frac{1}{5}}{x-5}$

20. $\lim\_{x\to 1}\frac{\frac{1}{x}-1}{x-1}$

21. $\lim\_{h\to 0}\frac{\frac{1}{x+h}-\frac{1}{x}}{h}$

22. $\lim\_{h\to 0}\frac{\frac{1}{2+h}-\frac{1}{2}}{h}$

23. $\lim\_{h\to 0}\frac{\frac{1}{5+h}-\frac{1}{5}}{h}$

24. $\lim\_{h\to 0}\frac{\frac{1}{3}-\frac{1}{3+h}}{h}$

25. $\lim\_{x\to 2}\frac{\frac{1}{x^{2}}-\frac{1}{4}}{x-2}$

26. $\lim\_{x\to 3}\frac{\frac{1}{x^{2}}-\frac{1}{9}}{x-3}$

II. Find each using the graph

1. Graph is continuous and smooth a) $\lim\_{x\to 0}f(x)$ b) $\lim\_{x\to 5}f(x)$

2. Graph is continuous and smooth



a) $\lim\_{x\to 0}g(x)$ b) $\lim\_{x\to 7}g(x)$

3. Graph has a sharp bend



a) $\lim\_{x\to 2}h(x)$ b) $\lim\_{x\to 6}h(x)$

4. Graph has a sharp bend



a) $\lim\_{x\to 3}f(x)$ b) $\lim\_{x\to 6}f(x)$

5. Graph has a sharp bend



a) $\lim\_{x\to 3}s(x)$ b) $\lim\_{x\to 7}s(x)$

6. Graph has sharp bend



a) $\lim\_{x\to 6}f(x)$ b) $\lim\_{x\to 8}f(x)$

7. Graph has single point hole



a) $\lim\_{x\to 2}g(x)$ b) $\lim\_{x\to 6}g(x)$

8. Graph has single point hole



a) $\lim\_{x\to 3}h(x)$ b) $\lim\_{x\to 5}h(x)$

9. Graph has single point hole



a) $\lim\_{x\to 3}f(x)$ b) $\lim\_{x\to 7}f(x)$

10. Graph has single point hole

 a) $\lim\_{x\to 0}g(x)$ b) $\lim\_{x\to 6}g(x)$

11. Graph has endpoints



a) $\lim\_{x\to 3^{+}}g(x)$

12. Graph has endpoints



a) $\lim\_{x\to 0^{+}}f(x)$ b) $\lim\_{x\to 7^{-}}f(x)$

13. Graph has gap-jump



a) $\lim\_{x\to 4}f(x)$ b) $\lim\_{x\to 8}f(x)$

14. Graph has gap-jump



a) $\lim\_{x\to 0}g(x)$ b) $\lim\_{x\to 3}g(x)$

15. Graph has gap-jump



a) $\lim\_{x\to 2}k(x)$ b) $\lim\_{x\to 6}k(x)$

16. Graph has gap-jump



a) $\lim\_{x\to 2}t(x)$ b) $\lim\_{x\to 5}t(x)$

17. Graph tends to infinity

a) $\lim\_{x\to 4}f(x)$

18. Graph tends to infinity

a) $\lim\_{x\to 8}g(x)$

19. Graph tends to infinity



a) $\lim\_{x\to 0}f(x)$ b) $\lim\_{x\to 3}f(x)$

20.

a) $\lim\_{x\to 0}g(x)$ b) $\lim\_{x\to 3}g(x)$

21.



a) $\lim\_{x\to 5}h(x)$ b) $\lim\_{x\to 2}h(x)$

22. 

a) $\lim\_{x\to 0}m(x)$ b) $\lim\_{x\to 6}m(x)$

23.

a) $\lim\_{x\to 3}r(x)$ b) $\lim\_{x\to 4}r(x)$

24.

a) $\lim\_{x\to 0}z(x)$ b) $\lim\_{x\to 3}z(x)$