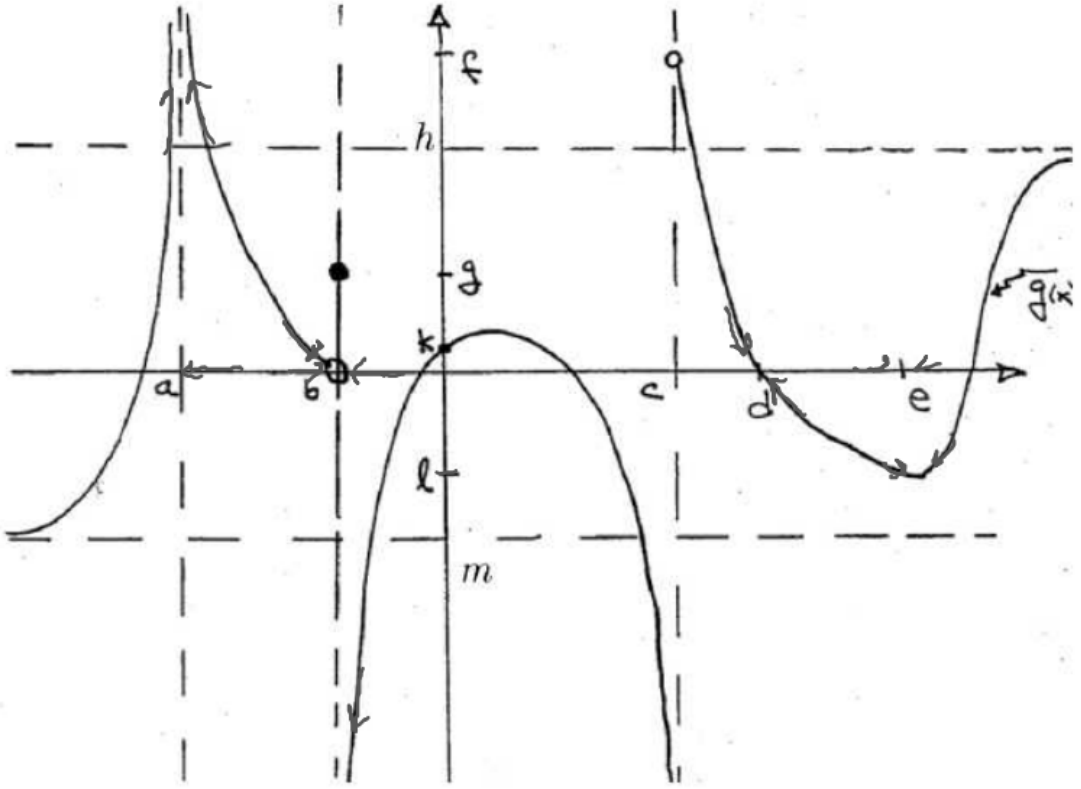
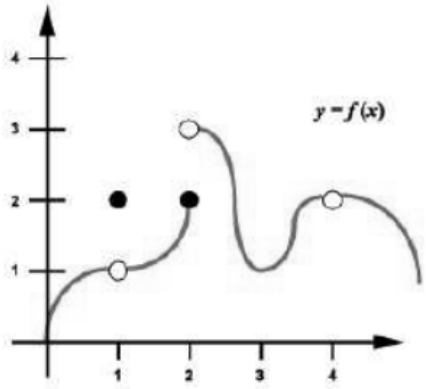
Limits: Graphically



For 1-15, use the graph above to evaluate each.
If a limit does not exist, explain why.

1. $\lim_{x\to\infty} g(x) =$ h	2. $\lim_{x\to-\infty} g(x) =$ m
3. $\lim_{x\to a+} g(x) =$ ∞	4. $\lim_{x\to a-} g(x) =$ ∞
5. $\lim_{x\to a} g(x) =$ ∞	6. $\lim_{x\to 0} g(x) =$ k
7. $\lim_{x\to b+} g(x) =$ -∞	8. $\lim_{x\to b-} g(x) =$ 0
9. $\lim_{x\to b} g(x) =$ dne	10. $\lim_{x\to c} g(x) =$ dne
11. $\lim_{x\to d} g(x) =$ -∞	12. $\lim_{x\to e} g(x) =$ L
13. g(e) = L	14. g(0) = k
15. g(b) = g	

For 16-20, use the graph below.



16. $\lim_{x\to 1} f(x) =$
17. $\lim_{x\to 2} f(x) =$
18. $\lim_{x\to 2+} f(x) =$
19. $\lim_{x\to 3} f(x) =$
20. $\lim_{x\to 4} f(x) =$

1.10 The Possibilities Are Limitless...

REFER TO THE GRAPH OF $R(x)$ TO EVALUATE THE FOLLOWING.

170. $\lim_{x\to\infty} R(x)$ f

171. $\lim_{x\to-\infty} R(x)$ f

172. $\lim_{x\to a^+} R(x)$ -∞

173. $\lim_{x\to a^-} R(x)$ ∞

174. $\lim_{x\to a} R(x)$ dne

175. $\lim_{x\to 0} R(x)$ 0

176. $\lim_{x\to b^+} R(x)$ -∞

177. $\lim_{x\to b^-} R(x)$ ∞

178. $\lim_{x\to b} R(x)$ dne

179. $\lim_{x\to c} R(x)$ dne

180. $\lim_{x\to d} R(x)$ k

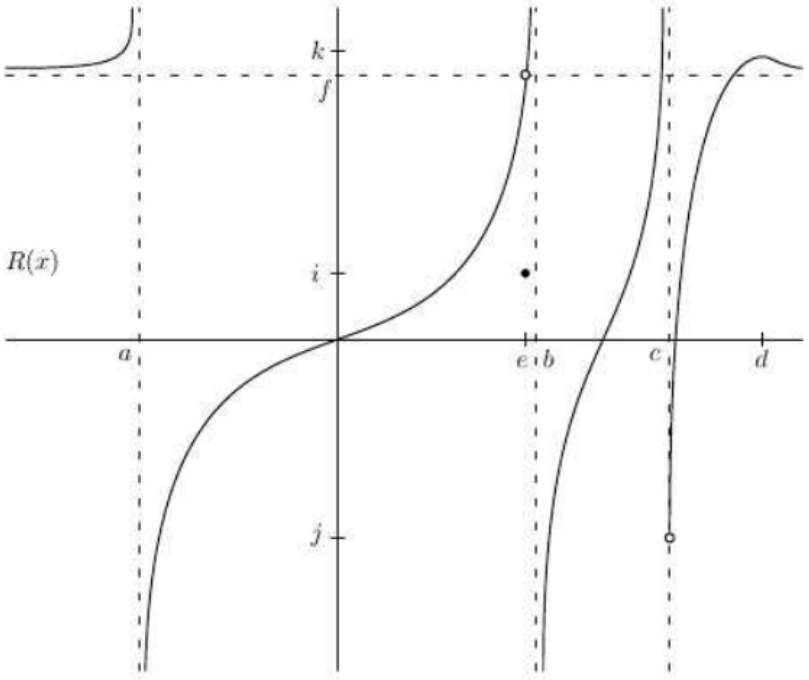
181. $\lim_{x\to e} R(x)$ f

182. $R(e)$ i

183. $R(0)$ 0

184. $R(b)$ undefined

185. $R(d)$ k



One of the big misapprehensions about mathematics that we perpetrate in our classrooms is that the teacher always seems to know the answer to any problem that is discussed. This gives students the idea that there is a book somewhere with all the right answers to all of the interesting questions, and that teachers know those answers. And if one could get hold of the book, one would have everything settled. That's so unlike the true nature of mathematics. —*Leon Hankin*