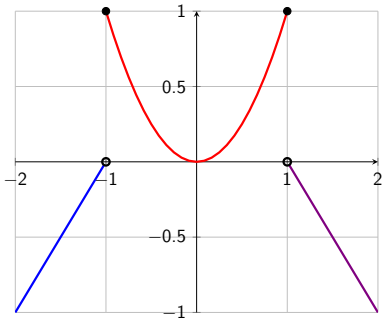
## Limits P-Set

Use a table with *at least* 2 values less than and 2 vales greater than the value given in the limit to evaluate each of the following.

1. $\lim_{x\to 1}(4x+3)$
2. $\lim_{x\to 5}(x^2-3x)$
3. $\lim_{x\to -4}\left(\frac{1}{x+3}\right)$
4. $\lim_{x\to 2}\left(\frac{x-2}{x^2-4}\right)$
5. $\lim_{x\to -5}\left(\frac{x^2-25}{x+5}\right)$
6. $\lim_{x\to -3}\left(\frac{x^2+5x+6}{x^2-x-12}\right)$

Given the graph of $f(x)$ below, find each.




7. $\lim_{x\to -1^-} f(x)$
8. $\lim_{x\to -1^+} f(x)$
9. $\lim_{x\to -1} f(x)$
10. $f(-1)$
11. $\lim_{x\to 1^-} f(x)$
12. $\lim_{x\to 1^+} f(x)$
13. $\lim_{x\to 1} f(x)$
14. $f(1)$

Find each limit algebraically.

15. $\lim_{x\to -1}(3x^2+6x)$
16. $\lim_{x\to 0}\sqrt{5x+49}$
17. $\lim_{x\to 0}\left(\frac{x^2-4}{x^2+4}\right)$
18. $\lim_{x\to -3}\left(\frac{x^2-x-12}{x+3}\right)$
19. $\lim_{x\to 1}\left(\frac{x^2-1}{x-1}\right)$
20. $\lim_{x\to -3}\left(\frac{x^2+x-6}{x^2+2x-3}\right)$

For $f(x)=2x^2$, evaluate each.

21. $\lim_{h\to 0}\frac{f(1+h)-f(1)}{h}$
22. $\lim_{h\to 0}\frac{f(3+h)-f(3)}{h}$

Key

1. 7
2. 10
3. $-1$
4. $\frac{1}{4}$
5. $-10$
6. $\frac{1}{7}$
7. 0
8. 1
9. Does not exist
10. 1
11. 1
12. 0
13. Does not exist
14. 1
15. $-3$
16. 7
17. $-1$
18. $-7$
19. 2
20. $\frac{5}{4}$
21. 4
22. 12