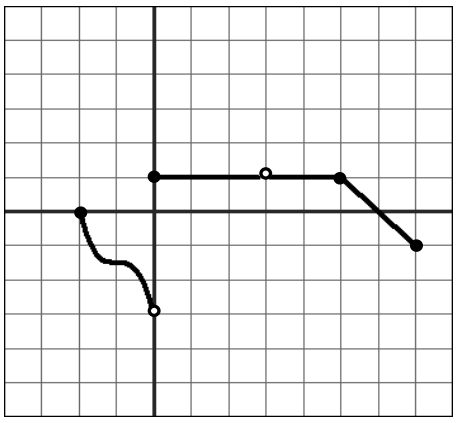
Review

Use the definition of the limit to show that $\lim_{x\to 2}(3x-2)=4$

Use the definition of the limit to show that $\lim_{x\to 4}(3-\frac{3}{2}x)=-3$

Based on the graph evaluate the following.



1. $\lim_{x\to 0^-} f(x) =$ _____

2. $\lim_{x\to 0^+} f(x) =$ _____

3. $\lim_{x\to 0} f(x) =$ _____

4. $\lim_{x\to 1^-} f(x) =$ _____

5. $\lim_{x\to 1^+} f(x) =$ _____

6. $\lim_{x\to 1} f(x) =$ _____

7. $\lim_{x\to 5} f(x) =$ _____

8. $f(1) =$ _____

9. $f(0) =$ _____

10. $f(-2) =$ _____

11. $\lim_{x\to 6^-} f(x) =$ _____

12. $\lim_{x\to 6^+} f(x) =$ _____

13. $\lim_{x\to 6} f(x) =$ _____

14. $f(6) =$ _____

15. $\lim_{x\to 3} f(x) =$ _____

16. $f(3) =$ _____

17. $\lim_{x\to -1} f(x) \approx$ _____

18. $f(-1) \approx$ _____

19. <u>True or False</u>: $\lim_{x\to c} f(x)$ exists at every c on (1,3)

20. <u>True or False</u>: $\lim_{x\to c} f(x)$ exists at every c on (−2,1)

Find each of the following limits (if exist)

1. $\lim_{x \to -0} x - 2\pi^3$

2. $\lim_{x \to 3} (3(x-1))^2$

3. $\lim_{x \to 3} \frac{x^2 - 5x + 6}{x^2 - 9}$

4. $\lim_{x \to 3} \frac{\sqrt{x+1} - 2}{x^2 - 9}$

5. $\lim_{x \to 1} \frac{(5 - x)^2 - 16}{x - 1}$

6. $\lim_{x \to -3} \frac{x^3 + 8}{x + 3}$

7. $\lim_{x \to 1} \frac{1 - x}{x^{1/3} - x^{4/3}}$

8. $\lim_{x \to \infty} \frac{4x^2 - 2x + 3}{3x - 1}$

9. $\lim_{x\to\infty}\dfrac{x+1}{\sqrt{4x^2+1}}$

10. $\lim_{x\to 1}\dfrac{\dfrac{4}{x-5}+1}{1-x^2}$

11. $\lim_{x\to 0}\dfrac{5x^2-x}{\sin x}$

12. $\lim_{x\to\infty}\left|\dfrac{4x^3-2x+3}{3x-x^3+1}\right|$

13. $\lim_{x\to 0}\dfrac{7x}{\sin 3x}$

14. $\lim_{x\to 0}\dfrac{x}{\cos\left(\dfrac{\pi}{2}-x\right)}=$

15. $\lim_{x\to\pi}\dfrac{x-\pi}{\sin(x-\pi)}=$

16. $\lim_{x\to\infty}\tan\left(\dfrac{\pi x^2-x}{x^2+5x}\right)$

17. $\lim_{x\to 0}\left[x^4\cos\left(\frac{3}{x}\right)\right]$

18. $\lim_{x\to 0}\frac{\sin 2x-2x}{6x+\tan 3x}=$

19. $\lim_{x\to 1}\left[\frac{1}{x^2-1}-\frac{1}{x-1}\right]$

20. $\lim_{x\to 2}\frac{\frac{1}{x}-\frac{1}{2}}{2-x}$

21. $\lim_{x\to -2}\frac{3x^2+5x-2}{x+2}$

22. $\lim_{x\to 1}\left[\frac{1}{x^2-1}-\frac{1}{x-1}\right]$