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1. Find the horizontal asymptote for $f(x) = \frac{7}{x-4}$.
 [A] $x = 4$ [B] $y = 0$ [C] $x = 0$ [D] $y = 7$ [E] None of these
2. Find the horizontal asymptote for $f(x) = \frac{3x^2 + 2x - 16}{x^2 - 7}$.
 [A] $y = 3$ [B] $y = 3x + 7$ [C] $y = 0$ [D] $x = \pm\sqrt{7}$ [E] None of these
3. Find the horizontal asymptote for $f(x) = \frac{2x^2 + x - 7}{x^2 - 1}$.
4. Find the horizontal asymptote for $f(x) = \frac{2x - 7}{x^2 - 1}$.
5. Find all horizontal asymptotes for $f(x) = \frac{4x}{\sqrt{x^2 + 9}}$.
 [A] $y = \pm 1$ [B] $y = 4$ [C] $y = 0$ [D] $y = \pm 4$ [E] None of these
6. Find all horizontal asymptotes for $f(x) = \frac{5x}{\sqrt{x^2 + 3}}$.
 [A] $y = 5$ [B] $y = \pm 5$ [C] $y = \pm 1$ [D] $y = 0$ [E] None of these
7. Find all horizontal asymptotes for $f(x) = \frac{6x}{\sqrt{x^2 - 3}}$.
 [A] $y = \pm 1$ [B] $y = 6$ [C] $y = \pm 6$ [D] $y = 0$ [E] None of these
8. Which of the following functions has a horizontal asymptote at $y = 2$?
 [A] $\frac{x-2}{3x-5}$ [B] $\frac{2x-1}{x^2+1}$ [C] $\frac{2x^2-6x+1}{1+x^2}$ [D] $\frac{2x}{\sqrt{x-2}}$ [E] None of these
9. Which of the following functions has a horizontal asymptote at $y = -\frac{1}{2}$?
 [A] $\frac{2x^2-6x+1}{1+x^2}$ [B] $\frac{x}{\sqrt{2x+1}}$ [C] $\frac{x^3}{1-2x^3}$ [D] $\frac{x-1}{2x^2+1}$ [E] None of these

10. Find all horizontal asymptotes for $f(x) = \frac{2}{x-3} - \frac{x}{x+2}$.

11. Find the horizontal asymptotes (if any) for $f(x) = \frac{ax^3}{bx^3 + cx + d}$.

12. Find the horizontal asymptotes (if any) for $f(x) = \frac{(a-bx)(c+dx)}{x^2}$.

13. Find the horizontal asymptotes (if any) for $f(x) = \frac{ax^2}{bx^3 + cx + d}$.

14. Find the horizontal asymptotes (if any) for $f(x) = \frac{ax^3}{b+cx+dx^2}$.

[A] $y = 0$ [B] $y = \frac{a}{b}$ [C] There are no horizontal asymptotes.

[D] $y = \frac{a}{d}$ [E] None of these

15. Find the limit: $\lim_{x \rightarrow \infty} \frac{2x^3 + 6x^2 + 5}{3 + x^3}$.

[A] 1 [B] ∞ [C] $\frac{2}{3}$ [D] 2 [E] None of these

16. Find the limit: $\lim_{x \rightarrow \infty} \frac{\sqrt{4x^2 - 1}}{x^2}$.

[A] 4 [B] ∞ [C] 2 [D] 0 [E] None of these

17. Find the limit: $\lim_{x \rightarrow \infty} \frac{x^2}{\sqrt{4x^2 - 1}}$.

18. Use a graphing utility to graph $f(x) = \frac{1-2x^3}{x^2+1}$. Use the graph to find the limit:

$$\lim_{x \rightarrow -\infty} \frac{1-2x^3}{x^2+1}.$$

- [A] $-\infty$ [B] -2 [C] $+\infty$ [D] 1 [E] None of these

19. Use a graphing utility to graph $f(x) = \frac{2x+5}{1-x}$. Use the graph to find the limit: $\lim_{x \rightarrow \infty} \frac{2x+5}{1-x}$.

- [A] 0 [B] ∞ [C] 2 [D] 5 [E] None of these

20. Find the limit: $\lim_{x \rightarrow \infty} \frac{a-bx^4}{cx^4+x^2}$.

- [A] $\frac{a}{c}$ [B] ∞ [C] 0 [D] $-\frac{b}{c}$ [E] None of these

21. Find the limits:

a. $\lim_{x \rightarrow +\infty} \frac{2x}{\sqrt{x^2+1}}$

b. $\lim_{x \rightarrow -\infty} \frac{2x}{\sqrt{x^2+1}}$

c. $\lim_{x \rightarrow \infty} \frac{2x}{\sqrt{x^2+1}}$

22. Find the limit: $\lim_{x \rightarrow +\infty} \left(\frac{2x}{3x+1} - \frac{x^2}{x-3} \right)$.

23. Find the limit: $\lim_{x \rightarrow \infty} \frac{\sin x}{3x}$.

- [A] 3 [B] 0 [C] ∞ [D] $\frac{1}{3}$ [E] None of these