

Finding Limits Algebraically

Name: _____

Date: _____

1. Find A so that $\lim_{x \rightarrow 2} \frac{x^2 + Ax - 10}{x - 2}$ exists.

2. $\lim_{h \rightarrow 0} \frac{\frac{1}{x+h} - \frac{1}{x}}{h} =$

3. Given $f(x) = \frac{x+3}{x^3 - 5x^2 - 24x}$. Find the $\lim_{x \rightarrow 3^-}$ for $f(x)$.

4. Evaluate: $\lim_{x \rightarrow 5} (x^2 - 3x + 6)$

5. $\lim_{x \rightarrow \frac{1}{2}} \frac{8x^3 - 1}{10x^2 - 7x + 1} =$

6. $\lim_{x \rightarrow 3} \frac{\frac{1}{x} - \frac{1}{3}}{x - 3} =$

7. Evaluate the given limit (if it exists):

$$\lim_{t \rightarrow -2} \frac{t+2}{t^2-4}$$

8. Find $\lim_{x \rightarrow 2} (x-5)(x+3)$.

9. $\lim_{h \rightarrow 0} \frac{\sqrt{x+h} - \sqrt{x}}{h} =$

10. $\lim_{x \rightarrow 2} \frac{\frac{1}{x} - \frac{1}{2}}{x - 2} =$

11. $\lim_{h \rightarrow 0} \frac{3(x+h)^2 - 3x^2}{h} =$

12. Evaluate the given limit (if it exists):

$$\lim_{x \rightarrow -2} \frac{x+2}{x^4-16}$$

13. Evaluate the given limit (if it exists):

$$\lim_{t \rightarrow -3} \frac{t + 3}{t^2 - 9}$$

14. If $f(x) = \begin{cases} 12 & \text{for } x \leq -4, \\ -3x & \text{for } -4 < x < 4, \\ -12 & \text{for } x \geq 4 \end{cases}$, then
 $\lim_{x \rightarrow -4} f(x) = \underline{\hspace{2cm}}$.

15. Let $f(x) = \frac{x - 2}{x^3 - 10x^2 + 16x}$.

Find the limit of $f(x)$ as x approaches 2.

16. Find $\lim_{x \rightarrow 2} \frac{x^2 - 4}{x - 2}$.

17. $\lim_{h \rightarrow 9} \frac{x - 9}{\sqrt{x} - 3} =$

18. Find $\lim_{x \rightarrow 1} \frac{x^2 - 4}{x + 5}$.

19. Evaluate the given limit (if it exists):

$$\lim_{x \rightarrow -2} \frac{x + 2}{x^3 + 8}$$

20. If $f(x) = \begin{cases} -7 & \text{for } x = 4, \\ 2x + 7 & \text{for } x \neq 4 \end{cases}$ then
 $\lim_{x \rightarrow 4} f(x) = \underline{\hspace{2cm}}$.

Finding Limits Algebraically 05/17/2016

- | | |
|--|---|
| 1.
Answer: 3 | 17.
Answer: 6 |
| 2.
Answer: $-\frac{1}{x^2}$ | 18.
Answer: $-\frac{1}{2}$ |
| 3.
Answer: $\frac{1}{33}$
Objective: MA.7 | 19.
Answer: $\frac{1}{12}$
Objective: MA.7 |
| 4.
Answer: 16
Objective: MA.7 | 20.
Answer: 15 |
| 5.
Answer: 2 | |
| 6.
Answer: $-\frac{1}{9}$ | |
| 7.
Answer: $-\frac{1}{4}$
Objective: MA.7 | |
| 8.
Answer: -15 | |
| 9.
Answer: $\frac{1}{2\sqrt{x}}$ | |
| 10.
Answer: $-\frac{1}{4}$ | |
| 11.
Answer: $6x$ | |
| 12.
Answer: $-\frac{1}{32}$
Objective: MA.7 | |
| 13.
Answer: $-\frac{1}{6}$
Objective: MA.7 | |
| 14.
Answer: 12 | |
| 15.
Answer: $-\frac{1}{12}$
Objective: MA.7 | |
| 16.
Answer: 4 | |