

## Limits to Infinity Homework

Name: \_\_\_\_\_

Determine the limit:

1.  $\lim_{x \rightarrow \infty} \frac{x+6}{2x^2-5}$

2.  $\lim_{x \rightarrow \infty} \frac{3x^3-2x+1}{4x^3+5}$

3.  $\lim_{x \rightarrow \infty} \frac{5x^2-3x+1}{2x^2+4x-7}$

4.  $\lim_{x \rightarrow \infty} \frac{4-7x}{2+3x}$

5.  $\lim_{x \rightarrow \infty} \frac{2x^2-3}{4x^3+5x}$

6.  $\lim_{x \rightarrow \infty} \frac{(3x+4)(x-1)}{(x+2)(2x+7)}$

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

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

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

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

11.  $\lim_{x \rightarrow \infty} \sqrt[3]{\frac{8+x^2}{x(x+1)}}$

12.  $\lim_{x \rightarrow \infty} \frac{4x-3}{\sqrt{x^2+1}}$

13.  $\lim_{x \rightarrow \infty} \sin(x)$

14.  $\lim_{x \rightarrow \infty} \cos(x)$

## Limits to Infinity Homework

Evaluate the following one-sided limits.

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

$$2. \lim_{x \rightarrow 2^-} \frac{3}{x-2} =$$

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

$$4. \lim_{x \rightarrow 5^+} \frac{3x-5}{5-x} =$$

$$5. \lim_{x \rightarrow 2^-} \frac{x+2}{x-2} =$$

$$6. \lim_{x \rightarrow 4^-} \frac{-3x}{x^2-16} =$$

$$7. \lim_{x \rightarrow 3^-} \frac{2x}{(x-3)^2} =$$

$$8. \lim_{x \rightarrow 0^+} \frac{\sqrt{7+x^2}}{2x} =$$

Evaluate the limits: you will need to check BOTH sides for the final answer:

$$9. \lim_{x \rightarrow 4} \frac{1}{4-x}$$

$$10. \lim_{x \rightarrow 5} \frac{x^2-5x}{x^2-25}$$

$$11. \lim_{x \rightarrow 4} \frac{3}{(x-4)^2}$$