Take the following functions and categorize them based on their limits as x approaches infinity and negative infinity.

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

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

4.
$$\lim_{x \to -\infty} -6x^5 + 4x^2 - 3$$
 -65

5.
$$\lim_{x \to \infty} x^3 - 10x^2 + 7x - 5$$
!!!! = ∞

6.
$$\lim_{x \to -\infty} -2x^4 + 8x - 6$$

7.
$$\lim_{x \to \infty} -x^6 + 3x^2 - 1$$

8. $\lim_{x \to -\infty} 5x^7 - x^3 + 9$

5. $\lim_{x \to -\infty} 5x^7 - x^3 + 9$

8.
$$\lim_{x \to -\infty} 5x^7 - x^3 + 9$$

9.
$$\lim_{x \to \infty} \frac{3x^2 + 5}{x^2 - 4}$$

$$11. \lim_{x \to \infty} \frac{x}{x^2 + 1}$$

12.
$$\lim_{x \to -\infty} \frac{4x^6 + 9}{-x^8 + 2}$$

13.
$$\lim_{x\to\infty} \frac{x^7+5x}{3x^7-2}$$
 $\lim_{x\to\infty} \frac{1}{3}$

14.
$$\lim_{x\to\infty} 3^x$$
 11h $\supset 9$

15.
$$\lim_{x \to -\infty} 2^x$$
 lim = ∞

16.
$$\lim_{x\to\infty} e^{-x}$$
 or $\frac{1}{2x} = 0$

17.
$$\lim_{x \to -\infty} e^x = 0$$

18.
$$\lim_{x \to \infty} 5e^{-0.5x}$$
 or $\frac{1}{5e^{-6x}}$ \im = $5e^{-0.5x}$

$$19. \lim_{x \to -\infty} 4e^{2x} \geq \infty$$

20.
$$\lim_{x\to\infty} -7(3^x)$$
 :=

Create-Your-Own "Evaluating Limits Study Guide"

What it must include:

Limits of Polynomial Functions



Direct Evaluation with values of x

V

At least one example of the algebraic process with a visual

o √ Rules for Evaluating Limits of Polynomial Functions as *x* approaches infinity and negative infinity

Limits of Rational Functions

Exerner



Direct Evaluation as the function approaches infinity and negative infinity



One example of each type of rational function with the algebraic process

 Rules for Evaluating Limits of Rational Functions as x approaches infinity and negative infinity

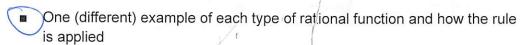


One (different) example of each type of rational function and how the rule is applied

Discriminant Forms – What are they, and how do they relate to evaluating limits of Rational Functions as *x* approaches in/inity and negative infinity?

Limits of Exponential Functions

 Rules for Evaluating Limits of Rational Functions as x approaches infinity and negative infinity



The visual representation of the limit rules is intended to serve as a study guide and notes for your upcoming assessment on limits.

As you are creating your guide, be creative! Think of a way to create your guide and express your rules for evaluating limits in a way that will be most helpful to you.