4.4: Indeterminate Forms and L'Hospital's Rule (Homework)

INSTRUCTOR
Francis Adjei
Texas A&M University at Galveston

Past Due **Due Date:** SAT, APR 18, 2026 11:59 PM CDT

Current Score: 20 / 20 POINTS | 100.0 %

Due date has passed. No changes can be made without an approved extension request. **You may not be granted an extension if you have already viewed the answer key.**

VIEW ANSWER KEY

Scoring and Assignment Information

QUESTION	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
POINTS	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1

Assignment Submission

For this assignment, you submit answers by question parts. The number of submissions remaining for each question part only changes if you submit or change the answer.

Assignment Scoring

Your best submission for each question part is used for your score.

1. **[1 / 1 Points]** DETAILS | MY NOTES | PREVIOUS ANSWERS | ASK YOUR TEACHER | PRACTICE ANOTHER

SCalcET9 4.4.013.

Find the limit. Use l'Hospital's Rule where appropriate. If there is a more elementary method, consider using it.

$$\lim_{x \to \pi/4} \frac{\cos(x) - \sin(x)}{\tan(x) - 1}$$

$$-\sqrt{22}$$

That's it!

Resources

Read It

2. **[1 / 1 Points]** DETAILS | MY NOTES | PREVIOUS ANSWERS | ASK YOUR TEACHER | PRACTICE ANOTHER

SCalcET9 4.4.034.

Find the limit. Use l'Hospital's Rule where appropriate. If there is a more elementary method, consider using it.

$$\lim_{x \to 0} \frac{e^x + e^{-x} - 2\cos(x)}{x \sin(x)}$$

$$2

Impressive work.

Resources

Read It

3. **[1 / 1 Points]** DETAILS | MY NOTES | PREVIOUS ANSWERS | ASK YOUR TEACHER | PRACTICE ANOTHER

SCalcET9 4.4.041.MI.

Find the limit. Use l'Hospital's Rule where appropriate. If there is a more elementary method, consider using it.

$$\lim_{x \to 0} \frac{\cos(x) - 1 + \frac{1}{2}x^2}{2x^4}$$

$$148

That's great!

Resources

Read It Watch It Tutorial

4. **[1 / 1 Points]** DETAILS MY NOTES PREVIOUS ANSWERS ASK YOUR TEACHER PRACTICE ANOTHER

SCalcET9 4.4.043.

Find the limit. Use l'Hospital's Rule where appropriate. If there is a more elementary method, consider using it.

$$\lim_{x \to \infty} x \sin\left(\frac{5\pi}{x}\right)$$

$$5π

That's it!

Resources

Read It Watch It

5. **[1 / 1 Points]** DETAILS MY NOTES PREVIOUS ANSWERS ASK YOUR TEACHER PRACTICE ANOTHER

SCalcET9 4.4.031.

Find the limit. Use l'Hospital's Rule where appropriate. If there is a more elementary method, consider using it.

$$\lim_{x \to 0} \frac{\sin^{-1}(x)}{6x}$$

$$16

Nice job.

Resources

Read It Watch It

6. **[1 / 1 Points]** DETAILS MY NOTES PREVIOUS ANSWERS ASK YOUR TEACHER PRACTICE ANOTHER

SCalcET9 4.4.040.

Find the limit. Use l'Hospital's Rule where appropriate. If there is a more elementary method, consider using it.

$$\lim_{x \to \infty} \frac{e^{-x}}{\left(\frac{\pi}{2}\right) - \tan^{-1}(x)}$$

$$0

Impressive work.

Resources

Read It

7. **[1 / 1 Points]** DETAILS MY NOTES PREVIOUS ANSWERS ASK YOUR TEACHER PRACTICE ANOTHER

SCalcET9 4.4.023.

Find the limit. Use l'Hospital's Rule where appropriate. If there is a more elementary method, consider using it.

$$\lim_{x \to 5} \frac{\ln\left(\frac{x}{5}\right)}{5 - x}$$

$$-15

Nicely done.

Resources

Read It

8. **[1 / 1 Points]** DETAILS MY NOTES PREVIOUS ANSWERS ASK YOUR TEACHER PRACTICE ANOTHER

SCalcET9 4.4.071.

Consider the following.

$$\lim_{x \to \infty} \left(1 + \frac{7}{x}\right)^x$$

Use l'Hospital's Rule to find the exact value of the limit.

$$e^7

Fantastic!

Resources

Read It Watch It

9. **[1 / 1 Points]** DETAILS MY NOTES PREVIOUS ANSWERS ASK YOUR TEACHER PRACTICE ANOTHER

SCalcET9 4.4.037.

Find the limit. Use l'Hospital's Rule where appropriate. If there is a more elementary method, consider using it.

$$\lim_{x \to 0^+} \frac{\arctan(4x)}{\ln(x)}$$

$$0

Fantastic work!

Resources

Read It Watch It

10. **[1 / 1 Points]** DETAILS MY NOTES PREVIOUS ANSWERS ASK YOUR TEACHER PRACTICE ANOTHER

SCalcET9 4.4.049.

Find the limit. Use l'Hospital's Rule where appropriate. If there is a more elementary method, consider using it.

$$\lim_{x \to 1^+} \ln(x) \tan\left(\frac{\pi x}{2}\right)$$

$$-2\pi

✔ That's right!

Resources

Read It

11. **[1 / 1 Points]** DETAILS MY NOTES PREVIOUS ANSWERS ASK YOUR TEACHER PRACTICE ANOTHER

SCalcET9 4.4.044.

Find the limit. Use l'Hospital's Rule where appropriate. If there is a more elementary method, consider using it.

$$\lim_{x \to \infty} \sqrt{x}\, e^{-x/2}$$

$0

✔ Nicely done!

Resources

Read It

12. **[1 / 1 Points]** DETAILS MY NOTES PREVIOUS ANSWERS ASK YOUR TEACHER PRACTICE ANOTHER

SCalcET9 4.4.068.

Find the limit. Use l'Hospital's Rule where appropriate. If there is a more elementary method, consider using it.

$$\lim_{x \to 0} (\cos(x))^{1/x^2}$$

$e^{-1/2}

✔ Great work!

Resources

Read It

13. **[1 / 1 Points]** DETAILS MY NOTES PREVIOUS ANSWERS ASK YOUR TEACHER PRACTICE ANOTHER

SCalcET9 4.4.059.MI.

Find the limit. Use l'Hospital's Rule where appropriate. If there is a more elementary method, consider using it.

$$\lim_{x \to 0} (1 - 6x)^{1/x}$$

$$e^{-6}$$

That's great!

Resources

Read It Watch It Tutorial

14. **[1 / 1 Points]** DETAILS MY NOTES PREVIOUS ANSWERS ASK YOUR TEACHER PRACTICE ANOTHER

SCalcET9 4.4.015.

Find the limit. Use l'Hospital's Rule where appropriate. If there is a more elementary method, consider using it.

$$\lim_{t \to 0} \frac{e^{3t} - 1}{\sin(t)}$$

$3

That's it!

Resources

Read It Watch It

15. **[1 / 1 Points]** DETAILS MY NOTES PREVIOUS ANSWERS ASK YOUR TEACHER PRACTICE ANOTHER

SCalcET9 4.4.038.

Find the limit. Use l'Hospital's Rule where appropriate. If there is a more elementary method, consider using it.

$$\lim_{x \to 0} \frac{x^2 \sin(x)}{\sin(x) - x}$$

$-6

That's right!

Resources

Read It

16. **[1 / 1 Points]** DETAILS | MY NOTES | PREVIOUS ANSWERS | ASK YOUR TEACHER | PRACTICE ANOTHER

SCalcET9 4.4.032.MI.

Find the limit. Use l'Hospital's Rule where appropriate. If there is a more elementary method, consider using it.

$$\lim_{x \to \infty} \frac{(\ln(x))^2}{3x}$$

$$0

That's it!

Resources

Read It Tutorial

17. **[1 / 1 Points]** DETAILS | MY NOTES | PREVIOUS ANSWERS | ASK YOUR TEACHER | PRACTICE ANOTHER

SCalcET9 4.4.053.

Find the limit. Use l'Hospital's Rule where appropriate. If there is a more elementary method, consider using it.

$$\lim_{x \to 0^+} \left(\frac{1}{x} - \frac{1}{e^x - 1} \right)$$

$$12

Amazing job.

Resources

Read It

18. **[1 / 1 Points]** DETAILS | MY NOTES | PREVIOUS ANSWERS | ASK YOUR TEACHER | PRACTICE ANOTHER

SCalcET9 4.4.065.

Find the limit. Use l'Hospital's Rule where appropriate. If there is a more elementary method, consider using it.

$$\lim_{x \to 0^+} (8x + 1)^{\cot(x)}$$

$$e8

Amazing job.

Resources

Read It Watch It

19. **[1 / 1 Points]** DETAILS MY NOTES PREVIOUS ANSWERS ASK YOUR TEACHER PRACTICE ANOTHER

SCalcET9 4.4.067.

Find the limit. Use l'Hospital's Rule where appropriate. If there is a more elementary method, consider using it.

$$\lim_{x \to 0^+} (1 + \sin(9x))^{1/x}$$

$$e^9$$

That's it!

Resources

Read It

20. **[1 / 1 Points]** DETAILS MY NOTES PREVIOUS ANSWERS ASK YOUR TEACHER PRACTICE ANOTHER

SCalcET9 4.4.033.

Find the limit. Use l'Hospital's Rule where appropriate. If there is a more elementary method, consider using it.

$$\lim_{x \to 0} \frac{x 6^x}{6^x - 1}$$

$$1/\ln(6)$$

Well done.

Resources

Read It Watch It