MATH 151 Review 1 (Practice)

INSTRUCTOR
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Past Due **Due Date:** FRI, FEB 13, 2026 6:00 PM CST

Current Score: 43 / 43 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	21	22	23
POINTS	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1	2 / 2	9 / 9	1 / 1	2 / 2	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1	2 / 2	2 / 2	2 / 2	1 / 1	2 / 2	2 / 2	6 / 6	1 / 1	1 / 1

Assignment Submission

For this assignment, you submit answers by questions. You are required to use a new randomization after every 1 question submissions.

Assignment Scoring

Your last submission is used for your score.

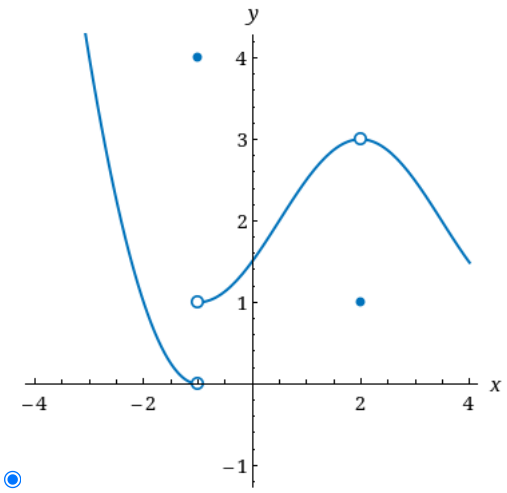
1. **[1 / 1 Points]** 1/100 Submissions Used

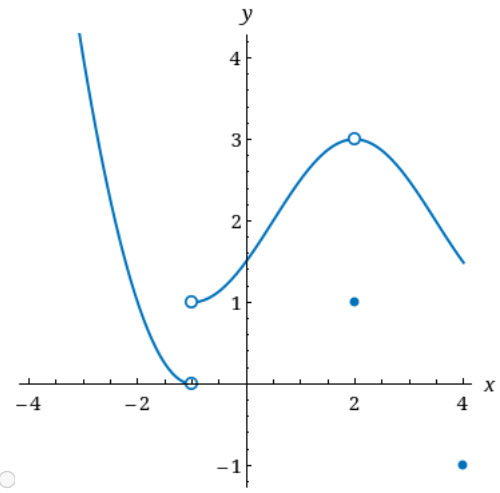
DETAILS | MY NOTES | PREVIOUS ANSWERS | ASK YOUR TEACHER | PRACTICE ANOTHER

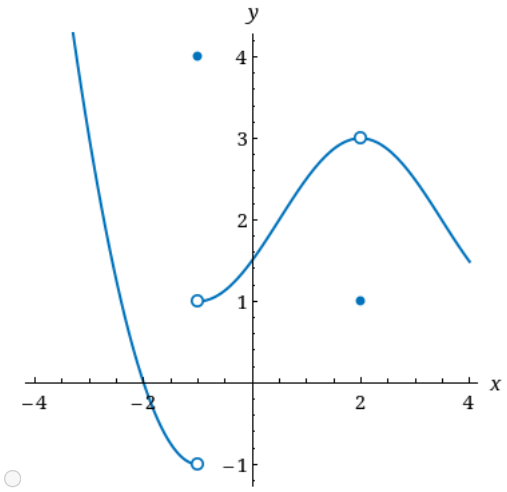
SCalcET9 2.2.017.

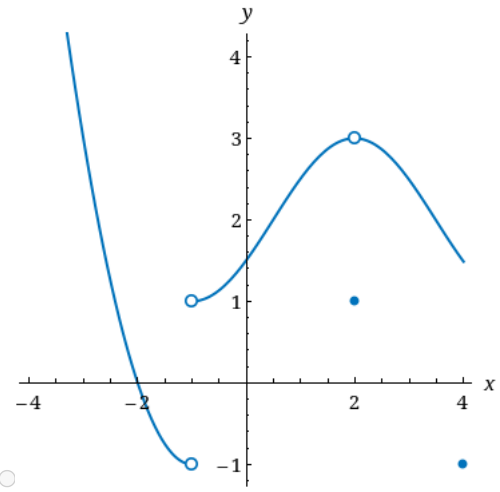
Sketch the graph of an example of a function f that satisfies all of the given conditions.

$\lim_{x \to -1^-} f(x) = 0$, $\lim_{x \to -1^+} f(x) = 1$, $\lim_{x \to 2} f(x) = 3$, $f(-1) = 4$, $f(2) = 1$









✔ Great job.

Resources

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2. **[1 / 1 Points]** 4/100 Submissions Used

DETAILS | MY NOTES | PREVIOUS ANSWERS | ASK YOUR TEACHER | PRACTICE ANOTHER

SCalcET9 2.3.061.

If $\lim_{x \to 1} \frac{f(x) - 7}{x - 1} = 8$, find $\lim_{x \to 1} f(x)$.

$$7

✔ Excellent!

Resources

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3. **[1 / 1 Points]** 4/100 Submissions Used

DETAILS | MY NOTES | PREVIOUS ANSWERS | ASK YOUR TEACHER | PRACTICE ANOTHER

SCalcET9 2.3.066.

Evaluate $\lim_{x \to 2} \frac{\sqrt{18 - x} - 4}{\sqrt{27 - x} - 5}$.

$$54

✔ Amazing job!

Resources

Read It

4. **[1 / 1 Points]** 3/100 Submissions Used

DETAILS | MY NOTES | PREVIOUS ANSWERS | ASK YOUR TEACHER | PRACTICE ANOTHER

SCalcET9 2.3.027.

Evaluate the limit, if it exists. (If an answer does not exist, enter DNE.)

$$\lim_{t \to 0} \frac{\sqrt{5 + t} - \sqrt{5 - t}}{t}$$

$$1\sqrt{5}

✔ Great job.

Resources

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5. **[1 / 1 Points]** 5/100 Submissions Used

DETAILS | MY NOTES | PREVIOUS ANSWERS | ASK YOUR TEACHER | PRACTICE ANOTHER

SCalcET9 2.3.029.

Evaluate the limit, if it exists. (If an answer does not exist, enter DNE.)

$$\lim_{x \to 9} \frac{3 - \sqrt{x}}{9x - x^2}$$

$$154

Awesome job!

Resources

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6. **[2 / 2 Points]** 2/100 Submissions Used

DETAILS | MY NOTES | PREVIOUS ANSWERS | ASK YOUR TEACHER | PRACTICE ANOTHER

SCalcET9 2.5.025.

Consider the following function.

$$f(x) = \frac{x - 2}{x^2 - 4}$$

(a) Explain why f has a removable discontinuity at $x = 2$. (Select all that apply.)

- [x] $f(x)$ is finite.
- [ ] $\lim_{x \to 2} f(x)$ does not exists.
- [x] $f(2)$ is undefined.
- [ ] $f(2)$ and $\lim_{x \to 2} f(x)$ are finite, but are not equal.
- [ ] none of the above

That's great!

(b) Redefine $f(2)$ so that f is continuous at $x = 2$ (and thus the discontinuity is "removed").

$f(2) =$ 1/4 Nice job.

Resources

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7. **[9 / 9 Points]** 2/100 Submissions Used

DETAILS | MY NOTES | PREVIOUS ANSWERS | ASK YOUR TEACHER | PRACTICE ANOTHER

SCalcET9 2.5.043.EP.

Consider the following function.

$$f(x) = \begin{cases} 4x^2 & \text{if } x < -1 \\ 4x & \text{if } -1 \le x < 1 \\ \frac{4}{x} & \text{if } x \ge 1 \end{cases}$$

Find the following values.

$f(-1)$ = $$-4

Good work.

$f(1)$ = $$4

Exactly!

$\lim_{x \to -1^-} f(x)$ = $$4

That's great!

$\lim_{x \to -1^+} f(x)$ = $$-4

Perfect!

$\lim_{x \to 1^-} f(x)$ = $$4

Very nice!

$\lim_{x \to 1^+} f(x)$ = $$4

Great work.

Find each x–value at which f is discontinuous and for each x–value, determine whether f is continuous from the right, or from the left, or neither.

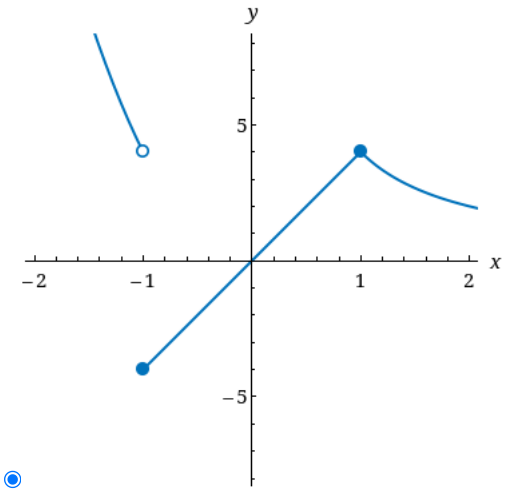
$x =$ -1 That's it!

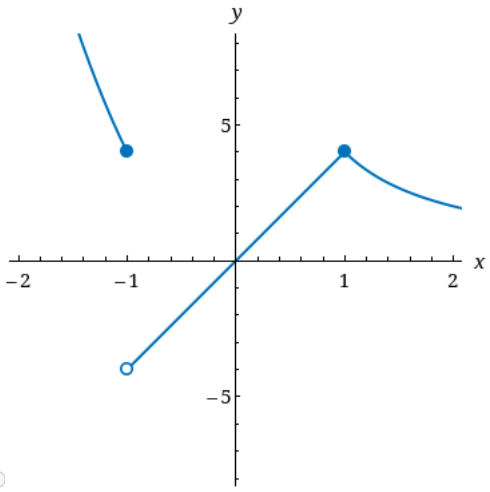
Is f continuous from the right, left, or neither at this value?

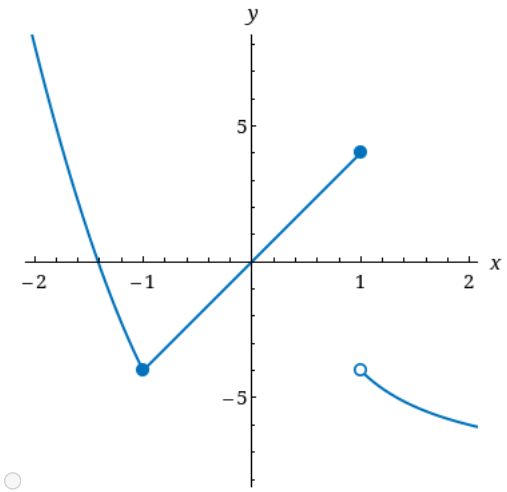
- (•) continuous from the right
- ( ) continuous from the left
- ( ) neither

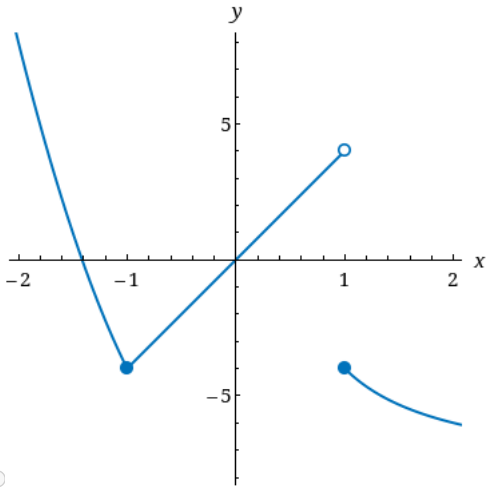
Good work.

Sketch the graph of f.









Great work!

Resources

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8. **[1 / 1 Points]** 2/100 Submissions Used

DETAILS | MY NOTES | PREVIOUS ANSWERS | ASK YOUR TEACHER | PRACTICE ANOTHER

SCalcET9 2.5.047.MI.

Let $f(x) = \begin{cases} cx^2 + 8x & \text{if } x < 3 \\ x^3 - cx & \text{if } x \geq 3. \end{cases}$

For what value of the constant c is the function f continuous on $(-\infty, \infty)$?

$c =$ 1/4 Awesome!

Resources

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9. **[2 / 2 Points]** 1/100 Submissions Used

DETAILS | MY NOTES | PREVIOUS ANSWERS | ASK YOUR TEACHER | PRACTICE ANOTHER

SCalcET9 2.5.048.

Find the values of a and b that make f continuous everywhere.

$$f(x) = \begin{cases} \dfrac{x^2 - 4}{x - 2} & \text{if } x < 2 \\ ax^2 - bx + 3 & \text{if } 2 \le x < 3 \\ 4x - a + b & \text{if } x \ge 3 \end{cases}$$

a = 3.5 ✓ Fantastic work!

b = 6.5 ✓ Great work.

Resources

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10. **[1 / 1 Points]** 1/100 Submissions Used

DETAILS | MY NOTES | PREVIOUS ANSWERS | ASK YOUR TEACHER | PRACTICE ANOTHER

SCalcET9 2.5.049.MI.

Suppose f and g are continuous functions such that

$$g(5) = 5 \text{ and } \lim_{x \to 5} \left[3f(x) + f(x)g(x)\right] = 16.$$

Find $f(5)$.

2 ✓ Well done!

Resources

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11. **[1 / 1 Points]** 1/100 Submissions Used

DETAILS | MY NOTES | PREVIOUS ANSWERS | ASK YOUR TEACHER | PRACTICE ANOTHER

SCalcET9 2.6.014.

Evaluate the limit using the appropriate properties of limits. (If the limit is infinite, enter '∞' or '-∞', as appropriate. If the limit does not otherwise exist, enter DNE.)

$$\lim_{x \to \infty} \left(\sqrt{\frac{16x^3 + 7x - 5}{3 - 6x + x^3}} \right)$$

$$4

✓ Impressive work.

Resources

Read It

12. **[1 / 1 Points]** 1/100 Submissions Used

DETAILS | MY NOTES | PREVIOUS ANSWERS | ASK YOUR TEACHER | PRACTICE ANOTHER

SCalcET9 2.6.023.

Find the limit. (If the limit is infinite, enter '∞' or '-∞', as appropriate. If the limit does not otherwise exist, enter DNE.)

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

$$√35

That's it!

Resources

Read It Watch It

13. **[1 / 1 Points]** 2/100 Submissions Used

DETAILS | MY NOTES | PREVIOUS ANSWERS | ASK YOUR TEACHER | PRACTICE ANOTHER

SCalcET9 2.6.030.

Find the limit. (If the limit is infinite, enter '∞' or '-∞', as appropriate. If the limit does not otherwise exist, enter DNE.)

$$\lim_{x \to -\infty} \left(\sqrt{9x^2 + 4x} + 3x\right)$$

$$−46

Fantastic work!

Resources

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14. **[1 / 1 Points]** 1/100 Submissions Used

DETAILS | MY NOTES | PREVIOUS ANSWERS | ASK YOUR TEACHER | PRACTICE ANOTHER

SCalcET9 2.6.031.

Find the limit. (Let g and h represent arbitrary real numbers. If the limit is infinite, enter '∞' or '-∞', as appropriate. If the limit does not otherwise exist, enter DNE.)

$$\lim_{x \to \infty} \left(\sqrt{x^2 + gx} - \sqrt{x^2 + hx}\right)$$

$$g−h2

Fantastic work!

Resources

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15. **[2 / 2 Points]** 1/100 Submissions Used

DETAILS | MY NOTES | PREVIOUS ANSWERS | ASK YOUR TEACHER | PRACTICE ANOTHER

SCalcET9 2.6.052.

Find the horizontal and vertical asymptotes of the curve. You may want to use a graphing calculator (or computer) to check your work by graphing the curve and estimating the asymptotes. (Enter your answers as comma-separated lists. If an answer does not exist, enter DNE.)

$$f(x) = \frac{7e^x}{e^x - 9}$$

x = $$ln(9)

✓ Nice work.

y = $$0, 7

✓ You got it!

Resources

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16. **[2 / 2 Points]** 2/100 Submissions Used

DETAILS | MY NOTES | PREVIOUS ANSWERS | ASK YOUR TEACHER | PRACTICE ANOTHER

SCalcET9 2.7.005.EP.

Consider the following curve.

$$y = 2x^2 - 4x + 1$$

Find the slope m of the tangent line at the point (3, 7).

m = 8 ✓ Impressive work!

Find an equation of the tangent line to the curve at the point (3, 7).

y =

$$8x−17

✓ You're right!

Resources

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17. **[2 / 2 Points]** 1/100 Submissions Used

DETAILS | MY NOTES | PREVIOUS ANSWERS | ASK YOUR TEACHER | PRACTICE ANOTHER

SCalcET9 2.7.008.EP.

Consider the following curve.

$$y = \sqrt{5 - 31x}$$

Find the slope m of the tangent line at the point $(-1, 6)$.

$m =$ -31/12 ✔ You got it!

Find an equation of the tangent line to the curve at the point $(-1, 6)$.

$y =$

$$-3112x+4112

✔ Perfect!

Resources

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18. **[1 / 1 Points]** 1/100 Submissions Used

DETAILS | MY NOTES | PREVIOUS ANSWERS | ASK YOUR TEACHER | PRACTICE ANOTHER

SCalcET9 3.1.024.

Differentiate the function.

$$y = \frac{2\sqrt{x} + 2x}{9x^2}$$

$y' =$

$$-13x(52)-29x2

✔ Nicely done!

Resources

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19. **[2 / 2 Points]** 1/100 Submissions Used

DETAILS | MY NOTES | PREVIOUS ANSWERS | ASK YOUR TEACHER | PRACTICE ANOTHER

SCalcET9 3.1.036.

Consider the following.

$$y = \frac{t}{x^6} + \frac{x}{t}$$

Find $\frac{dy}{dx}$.

$\frac{dy}{dx}$ =

$$-6tx-7+1t

Impressive work.

Find $\frac{dy}{dt}$.

$\frac{dy}{dt}$ =

$$1x6-xt-2

You're right!

Resources

Read It

20. **[2 / 2 Points]** 1/100 Submissions Used

DETAILS | MY NOTES | PREVIOUS ANSWERS | ASK YOUR TEACHER | PRACTICE ANOTHER

SCalcET9 3.1.041.MI.

Find equations of the tangent line and normal line to the curve at the given point.

$y = x^4 + 7e^x$, (0, 7)

tangent line y = $$7x+7

Nicely done.

normal line y = $$-17x+7

Nice work.

Resources

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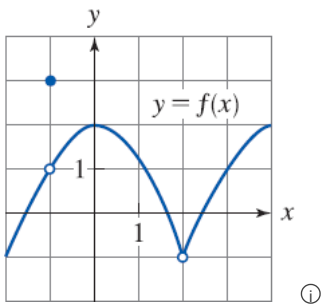
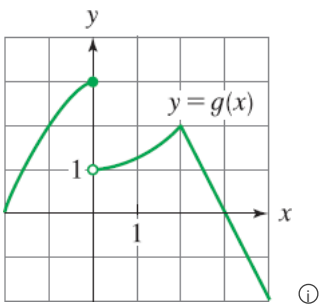
21. **[6 / 6 Points]** 2/100 Submissions Used

DETAILS | MY NOTES | PREVIOUS ANSWERS | ASK YOUR TEACHER | PRACTICE ANOTHER

SCalcET9 2.3.002.

The graphs of f and g are given. Use them to evaluate each limit, if it exists. (If an answer does not exist, enter DNE.)





(a) $\lim_{x \to 2} [f(x) + g(x)]$

1 ✓ Great work!

(b) $\lim_{x \to 0} [f(x) - g(x)]$

DNE ✓ Excellent job!

(c) $\lim_{x \to -1} [f(x)g(x)]$

2 ✓ Great work!

(d) $\lim_{x \to 3} \frac{f(x)}{g(x)}$

DNE ✓ Terrific!

(e) $\lim_{x \to 2} [x^2 f(x)]$

-4 ✓ That's great!

(f) $f(-1) + \lim_{x \to -1} g(x)$

5 ✓ Well done!

Resources

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22. **[1 / 1 Points]** 1/100 Submissions Used

DETAILS | MY NOTES | PREVIOUS ANSWERS | ASK YOUR TEACHER | PRACTICE ANOTHER

SCalcET9 2.3.039.MI.

If $3x - 1 \le f(x) \le x^2 - 3x + 8$ for $x \ge 0$, find $\lim_{x \to 3} f(x)$.

8 ✓ Awesome job!

Resources

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23. **[1 / 1 Points]** 2/100 Submissions Used

DETAILS | MY NOTES | PREVIOUS ANSWERS | ASK YOUR TEACHER | PRACTICE ANOTHER

SCalcET9 2.3.053.

Let

$$B(t) = \begin{cases} 6 - \frac{1}{5}t & \text{if } t < 5 \\ \sqrt{t + c} & \text{if } t \geq 5. \end{cases}$$

Find the value of c so that $\lim_{t \to 5} B(t)$ exists.

20 ✔ Good job!

Resources

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