2.5 Hmwk - Continuity (Homework)

INSTRUCTOR
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Texas A&M University at Galveston

Past Due **Due Date:** FRI, FEB 6, 2026 11:59 PM CST

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
POINTS	4 / 4	1 / 1	2 / 2	2 / 2	1 / 1	1 / 1	3 / 3	2 / 2	2 / 2	2 / 2

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

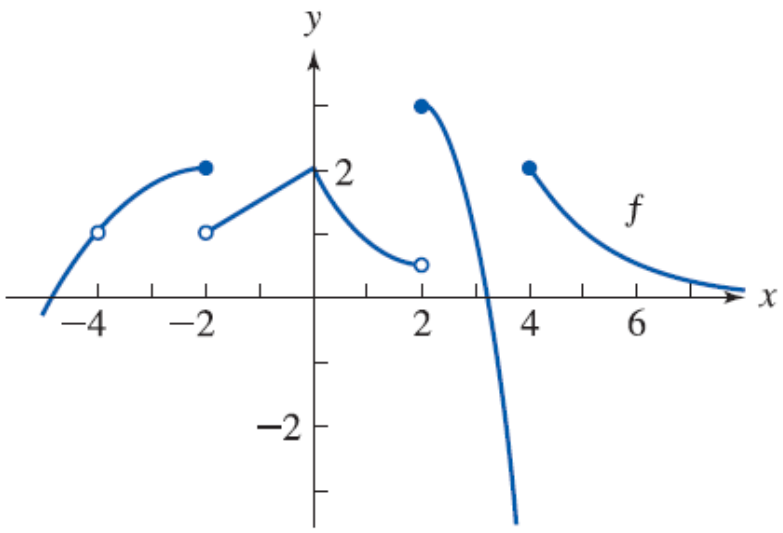
Your best submission for each question part is used for your score.

1. **[4 / 4 Points]**

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

SCalcET9 2.5.003.MI.

Use the graph to determine the x-values at which f is discontinuous. For each x-value, determine whether f is continuous from the right, from the left, or neither. (Enter your answers from smallest to largest.)



smallest value $x =$ -4 ✓ Very nice!

- ○ continuous from the right
- ○ continuous from the left
- ◉ neither

✓

Outstanding!

$x =$ -2 ✓ Excellent job!

- ○ continuous from the right
- ◉ continuous from the left
- ○ neither

✓

Amazing work.

$x =$ 2 ✓ Good job.

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

✓

You got it!

largest value $x = \boxed{4}$ ✓ Good job.

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

✓

Well done!

Resources

Read It Watch It Tutorial

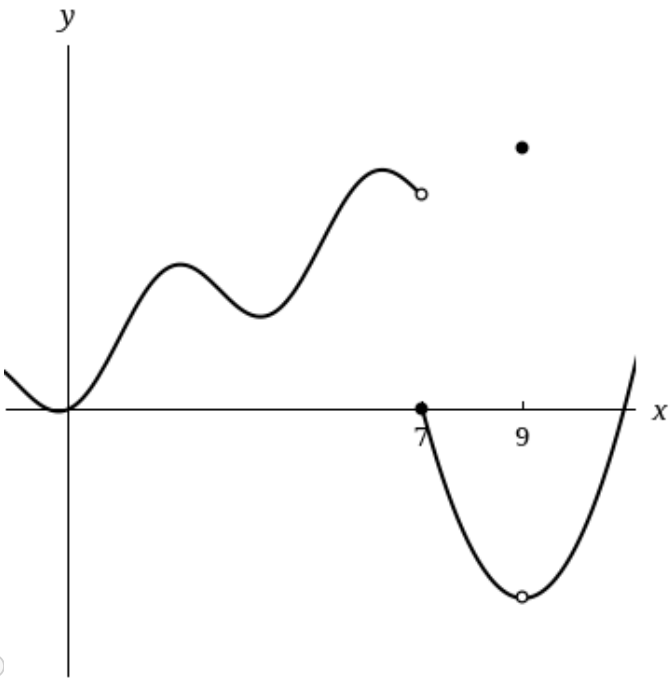
2. **[1 / 1 Points]**

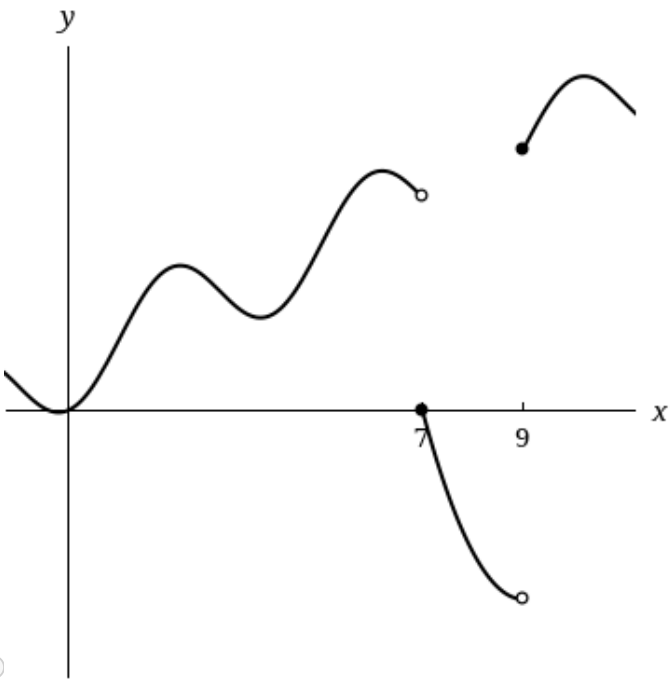
DETAILS | MY NOTES | PREVIOUS ANSWERS | ASK YOUR TEACHER | PRACTICE ANOTHER

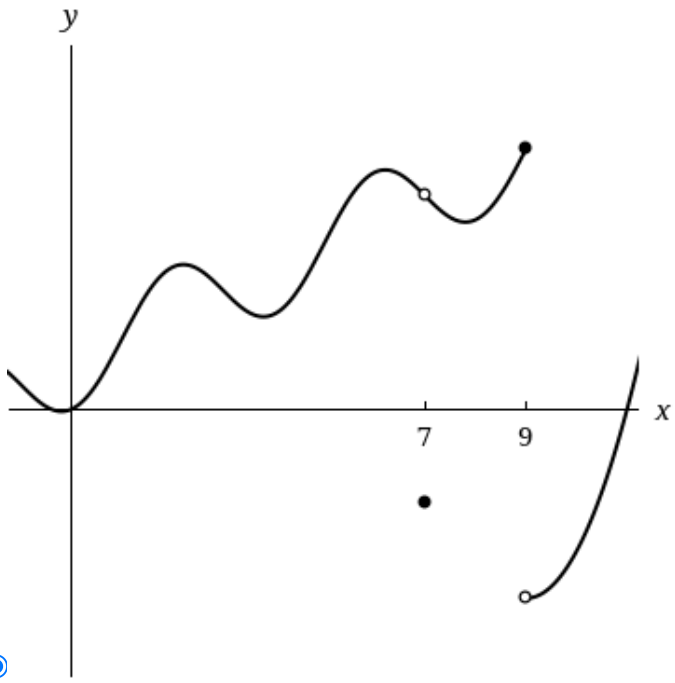
SCalcET9 2.5.008.

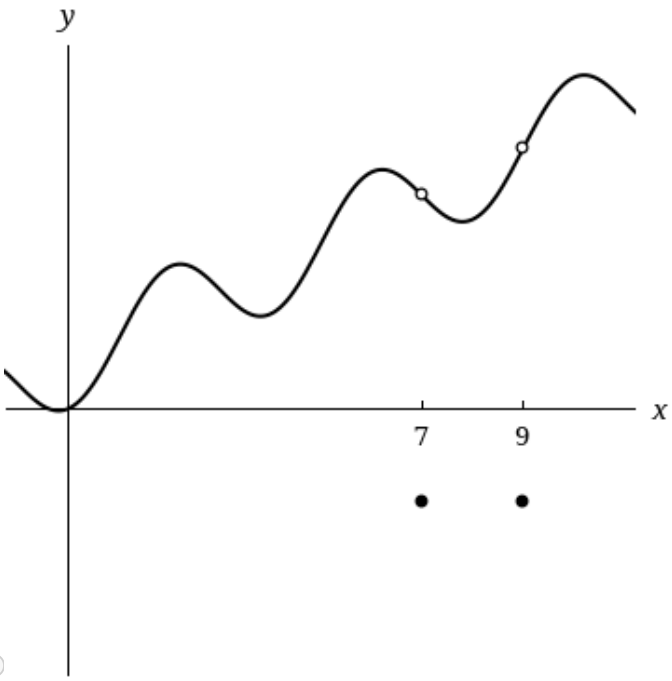
Sketch the graph of a function *f* that is defined on $\mathbb{R}$ and continuous except for the stated discontinuities.

jump discontinuity at 9, removable discontinuity at 7









Nice!

Resources

Read It Watch It

3. **[2 / 2 Points]**

DETAILS | MY NOTES | PREVIOUS ANSWERS | ASK YOUR TEACHER

PRACTICE ANOTHER

SCalcET9 2.5.022.

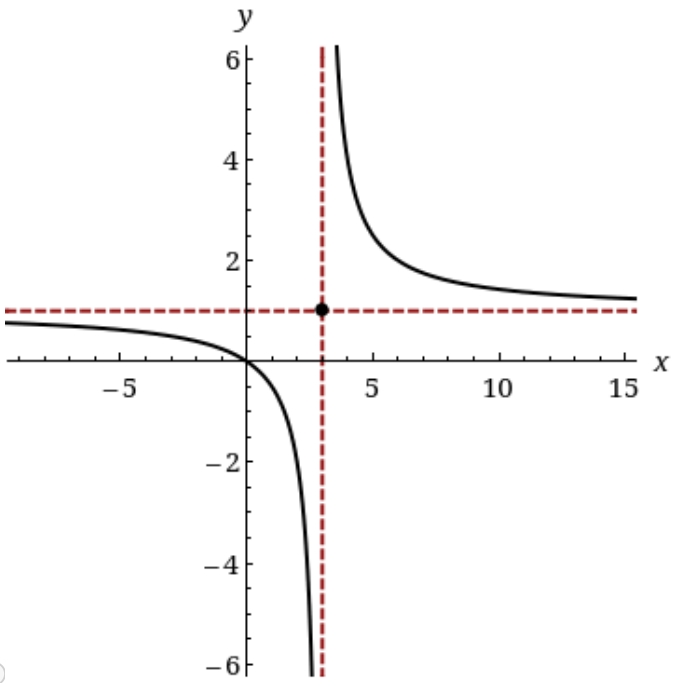
Explain why the function is discontinuous at the given number a. (Select all that apply.)

$$f(x) = \begin{cases} \dfrac{x^2 - 3x}{x^2 - 9} & \text{if } x \neq 3 \\ 1 & \text{if } x = 3 \end{cases} \qquad a = 3$$

- ☐ $\lim_{x \to 3^+} f(x)$ and $\lim_{x \to 3^-} f(x)$ are finite, but are not equal.
- ☑ $f(3)$ is defined and $\lim_{x \to 3} f(x)$ is finite, but they are not equal.
- ☐ $f(3)$ is undefined.
- ☐ $\lim_{x \to 3} f(x)$ does not exist.
- ☐ none of the above

Good work!

Sketch the graph of the function.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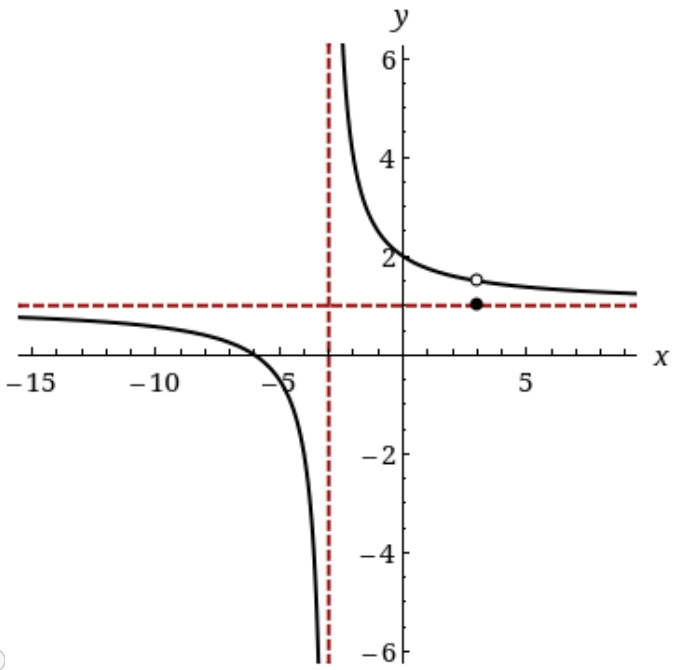
6
4
2
−5
5
10
15
x
−2
−4
−6


y
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4
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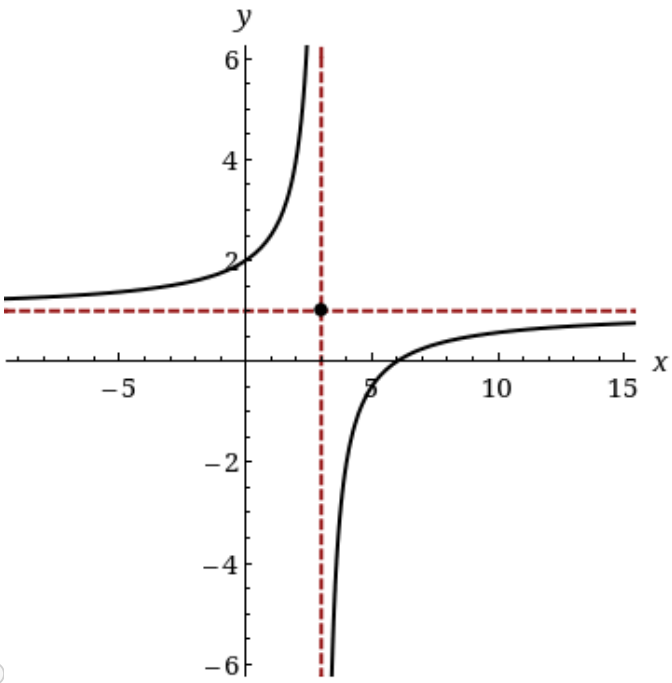
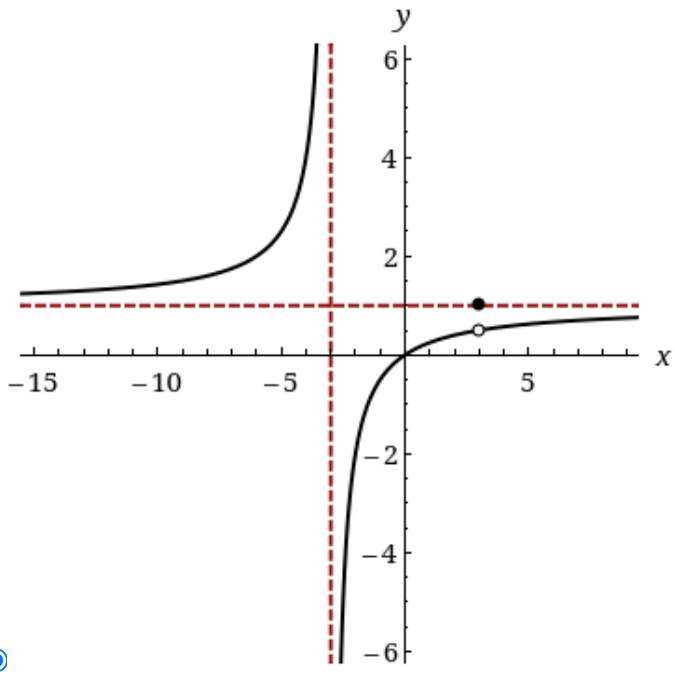
−15
−10
−5
5
x
−2
−4
−6





✔ Amazing work.

Resources

Read It

4. **[2 / 2 Points]**

DETAILS | MY NOTES | PREVIOUS ANSWERS | ASK YOUR TEACHER

PRACTICE ANOTHER

SCalcET9 2.5.019.

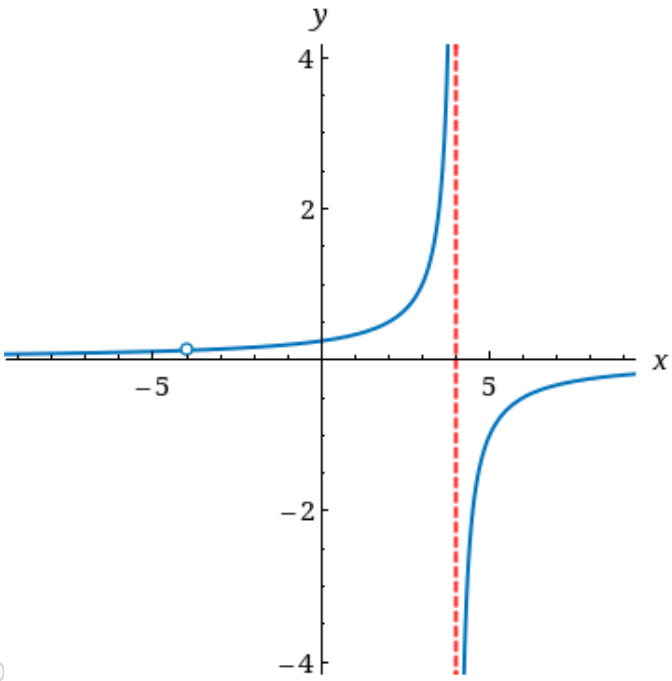
Explain why the function is discontinuous at the given number a. (Select all that apply.)

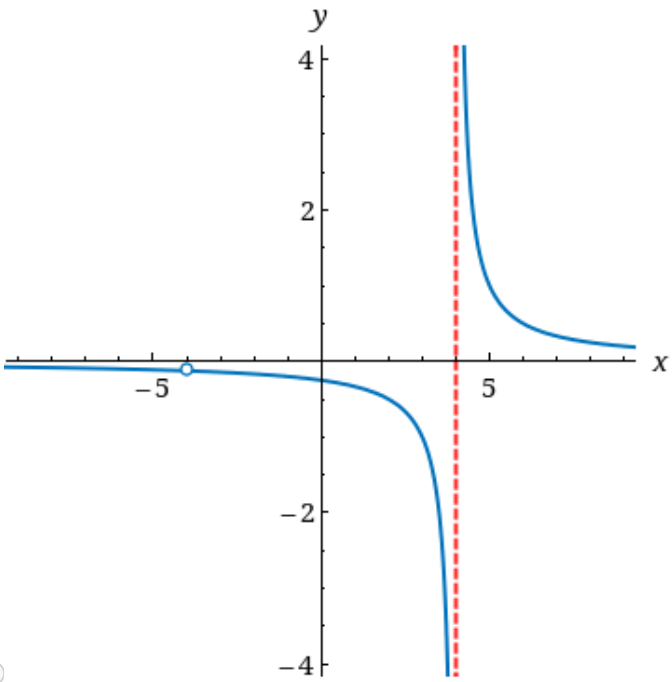
$$f(x) = \frac{1}{x + 4} \quad a = -4$$

- [x] $f(-4)$ is undefined.
- [ ] $\lim_{x \to -4} f(x)$ and $f(x)$ are finite, but are not equal.
- [x] $\lim_{x \to -4} f(x)$ does not exist.
- [x] $\lim_{x \to -4^+} f(x)$ and $\lim_{x \to -4^-} f(x)$ are not finite, and are not equal.
- [ ] none of the above

Perfect!

Sketch the graph of the function.


y
4
2
−5
5
x
−2
−4


y
4
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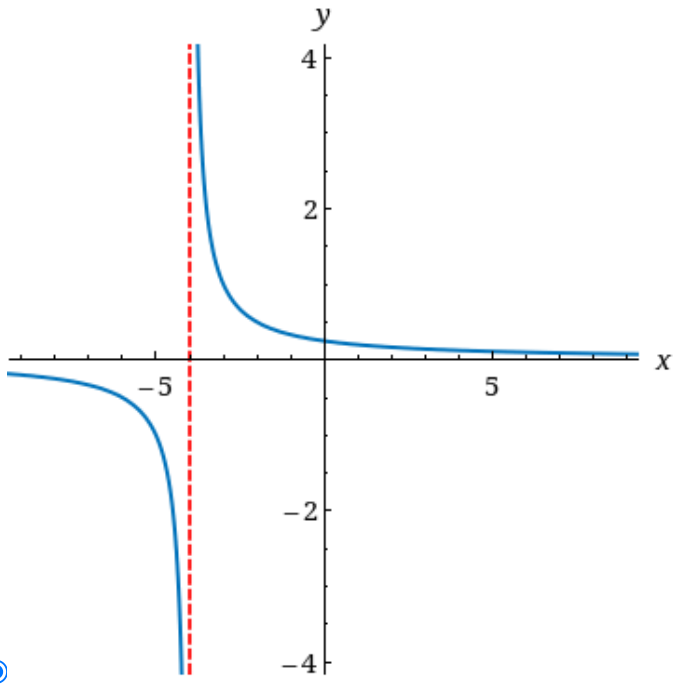
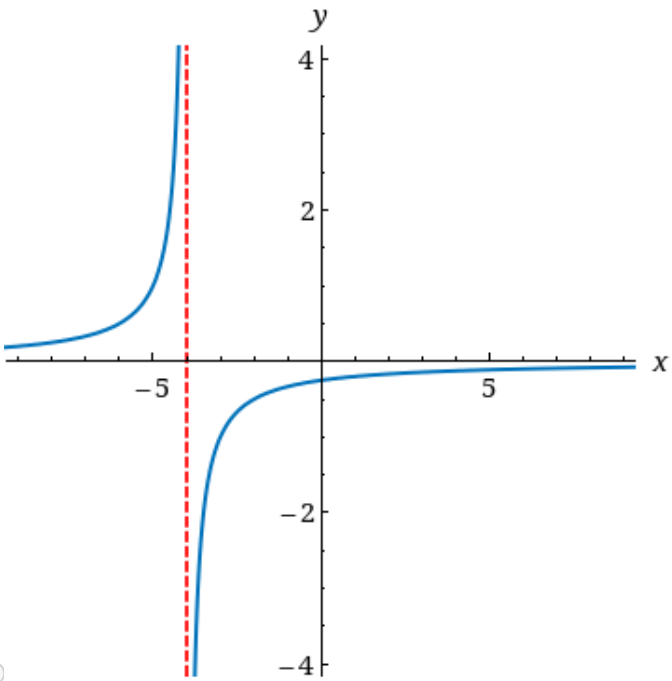
−5
5
x
−2
−4





✔ Outstanding!

Resources

Read It Watch It

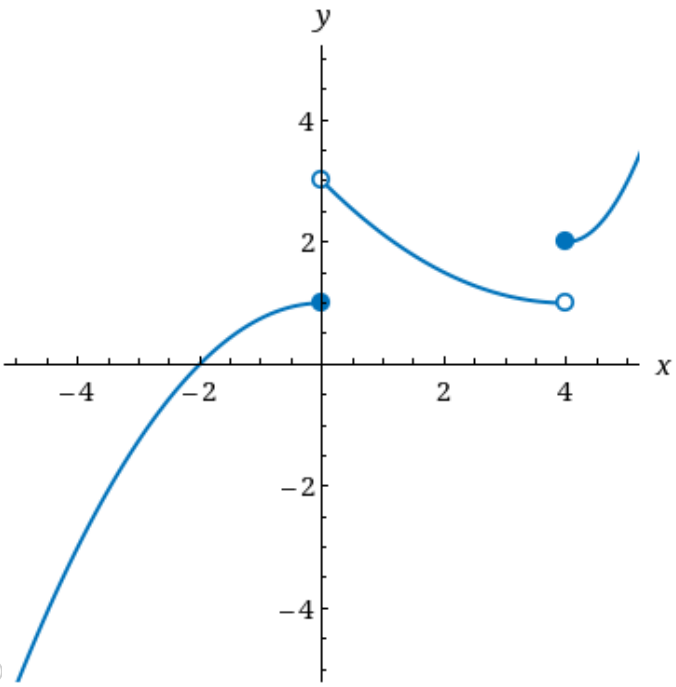
5. **[1 / 1 Points]**

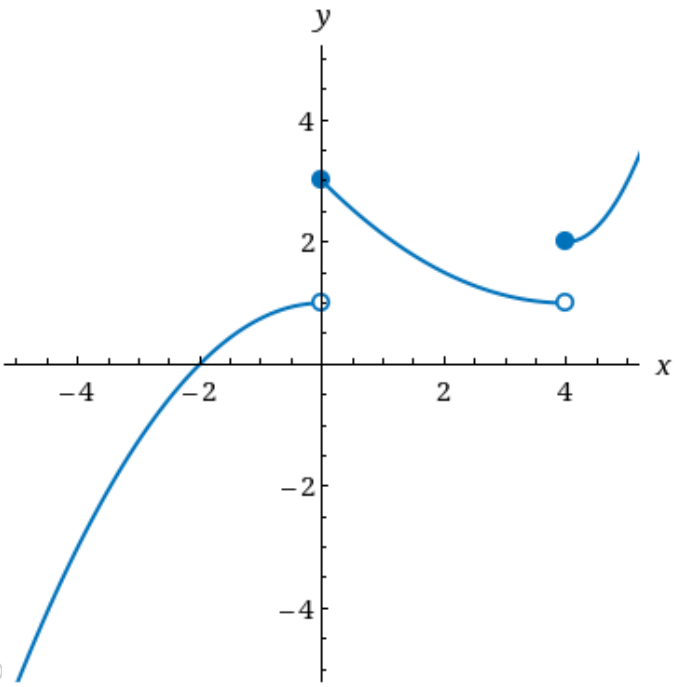
DETAILS | MY NOTES | PREVIOUS ANSWERS | ASK YOUR TEACHER | PRACTICE ANOTHER

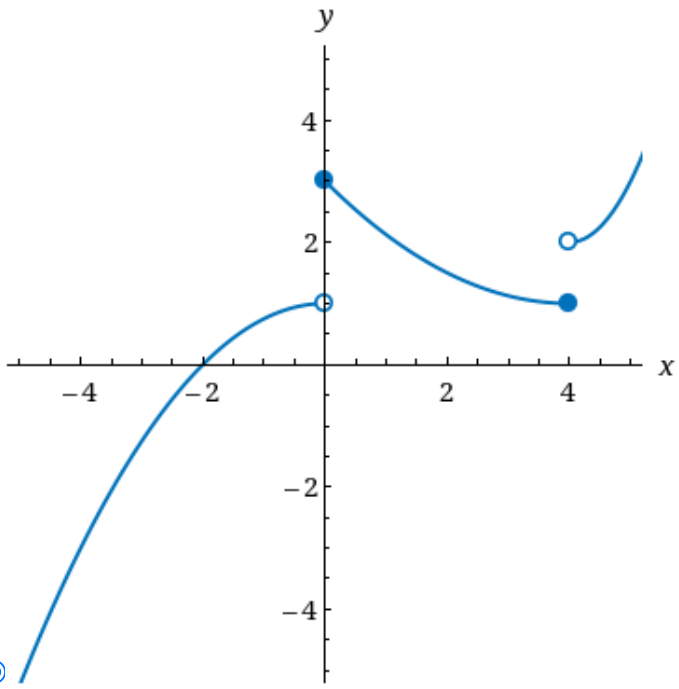
SCalcET9 2.5.009.

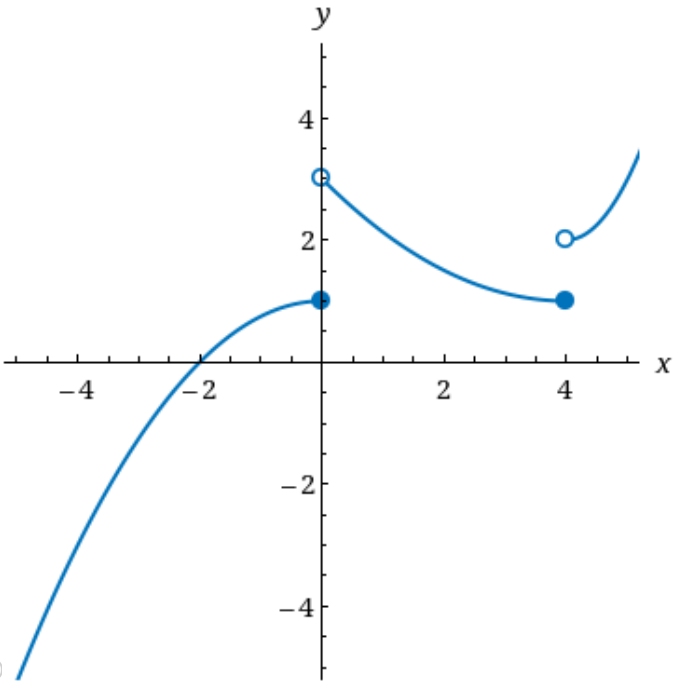
Sketch the graph of a function *f* that is defined on $\mathbb{R}$ and continuous except for the stated discontinuities.

discontinuities at 0 and 4 but continuous from the right at 0 and from the left at 4









✔ Good work!

Resources

Read It

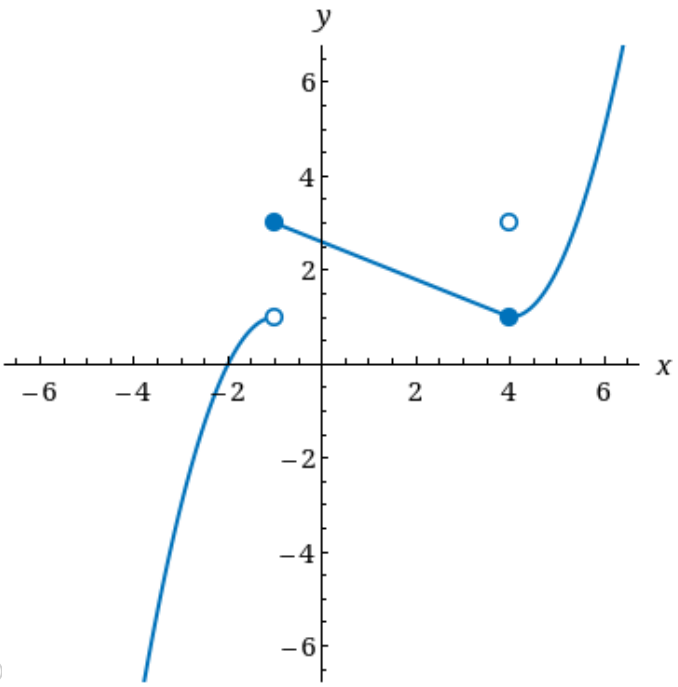
6. **[1 / 1 Points]**

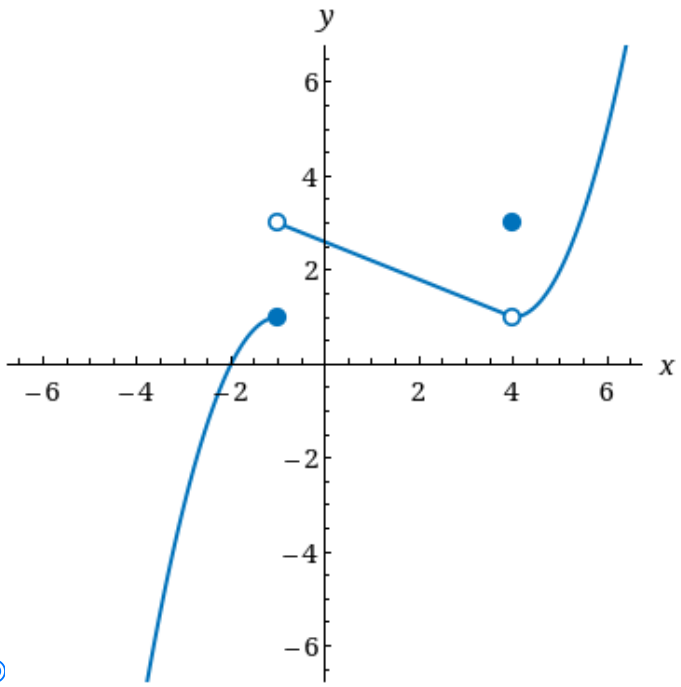
DETAILS | MY NOTES | PREVIOUS ANSWERS | ASK YOUR TEACHER | PRACTICE ANOTHER

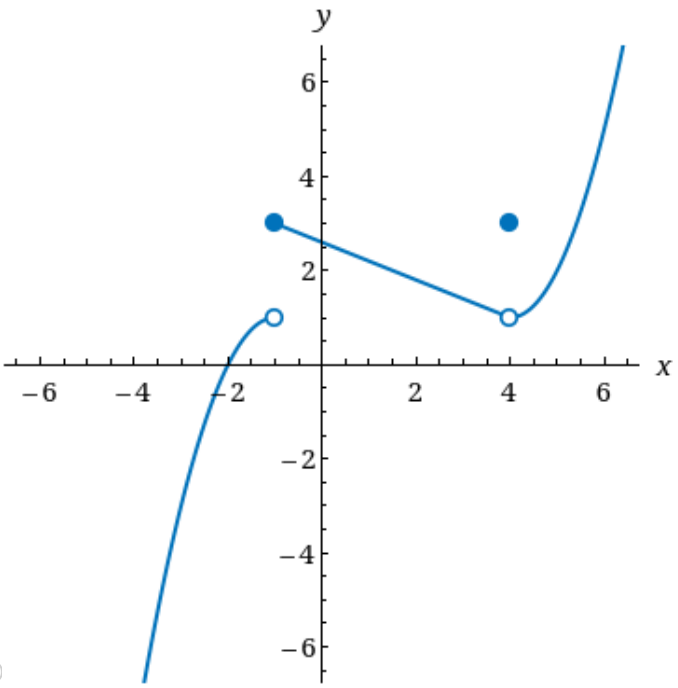
SCalcET9 2.5.010.

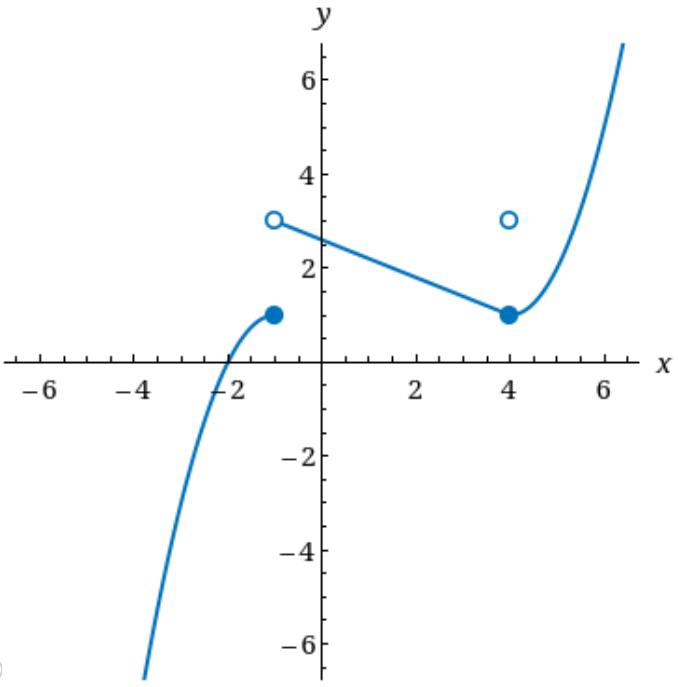
Sketch the graph of a function *f* that is defined on $\mathbb{R}$ and continuous except for the stated discontinuities.

continuous only from the left at −1, not continuous from the left or right at 4









✔ Well done!

Resources

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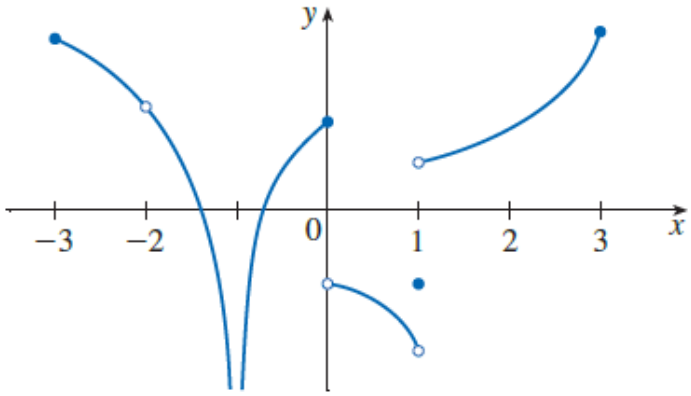
7. **[3 / 3 Points]**

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

SCalcET9 2.5.004.EP.

Consider the following graph of the function g.



ⓘ

For which value(s) of a does $g(x)$ approach a different number from the right side than it approaches from the left side? (Select all that apply.)

- [ ] −3
- [ ] −2
- [ ] −1
- [x] 0
- [x] 1
- [ ] 3

✔

Good!

For which value(s) of a does $g(x)$ increase or decrease without bound as x approaches a or for which value(s) of a is $g(x)$ not defined? (Select all that apply.)

- [ ] −3
- [x] −2
- [x] −1
- [ ] 0
- [ ] 1
- [ ] 3

✔

Nice!

From the given graph of g, state the numbers at which g is discontinuous. (Enter your answers as a comma-separated list.)

$x =$

$$−2, −1, 0, 1

✔ Nicely done!

Resources

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8. **[2 / 2 Points]**

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

SCalcET9 2.5.047.MI.

Let $f(x) = \begin{cases} cx^2 + 4x & \text{if } x < 5 \\ x^3 - cx & \text{if } x \geq 5. \end{cases}$

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

$c =$ 3.5 ✔ Nice!

Resources

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9. **[2 / 2 Points]**

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 ✔ Nice job!

b = 6.5 ✔ Great job.

Resources

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10. **[2 / 2 Points]**

DETAILS | MY NOTES | PREVIOUS ANSWERS | ASK YOUR TEACHER

PRACTICE ANOTHER

SCalcET9 2.5.024.

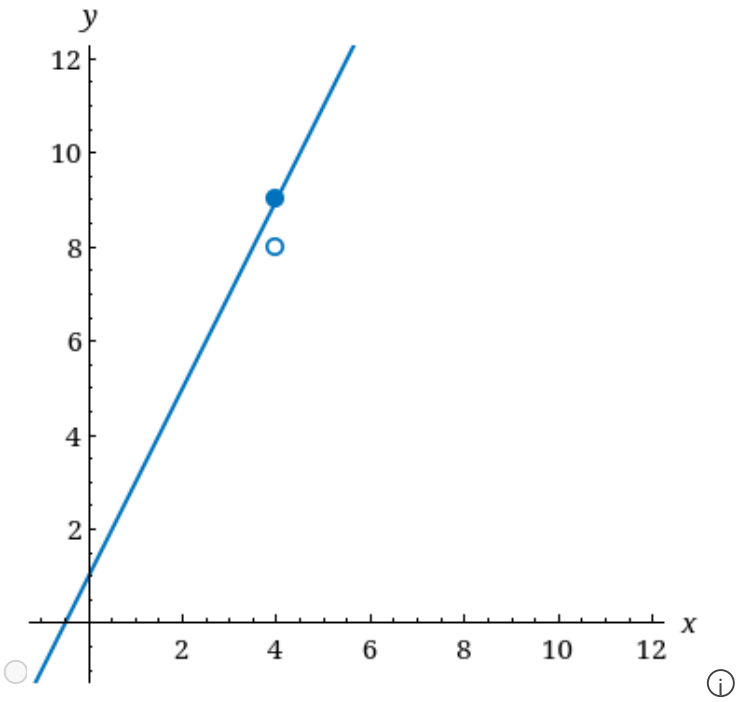
Explain why the function is discontinuous at the given number a. (Select all that apply.)

$$f(x) = \begin{cases} \dfrac{2x^2 - 7x - 4}{x - 4} & \text{if } x \neq 4 \\ 8 & \text{if } x = 4 \end{cases} \qquad a = 4$$

- [ ] $f(4)$ is undefined.
- [x] $\lim_{x \to 4} f(x)$ and $f(x)$ are finite, but are not equal.
- [ ] $\lim_{x \to 4^+} f(x)$ and $\lim_{x \to 4^-} f(x)$ are finite, but are not equal.
- [ ] $\lim_{x \to 4} f(x)$ does not exist.
- [ ] none of the above

Good work!

Sketch the graph of the function.


y
12
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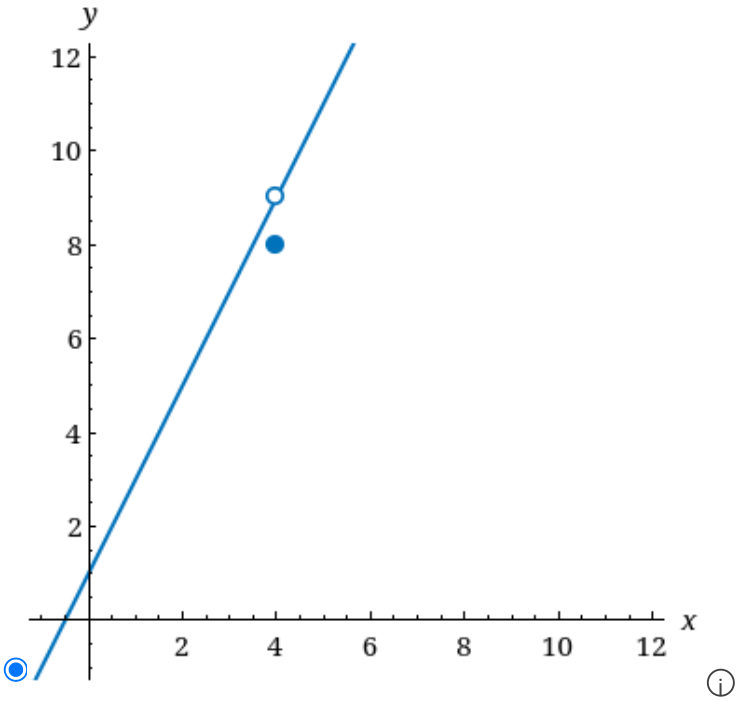
12
x


y
12
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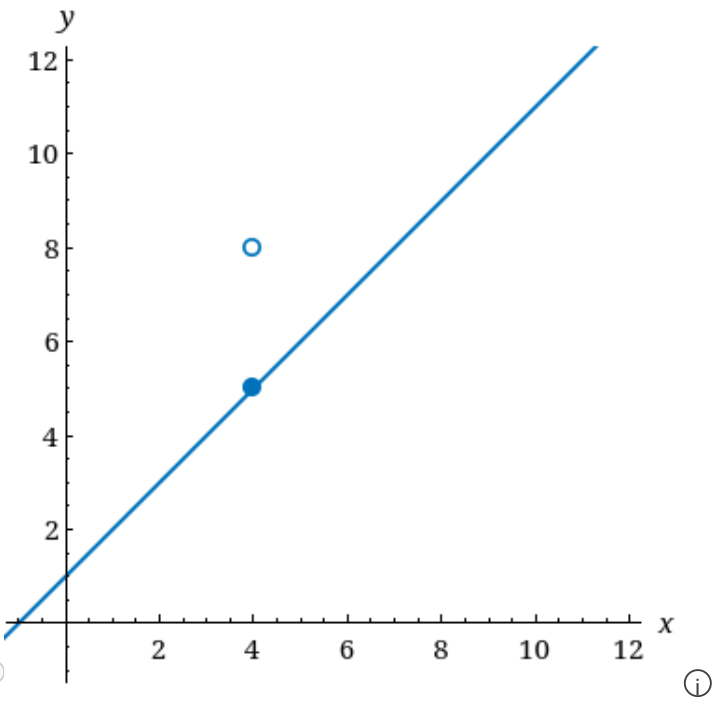
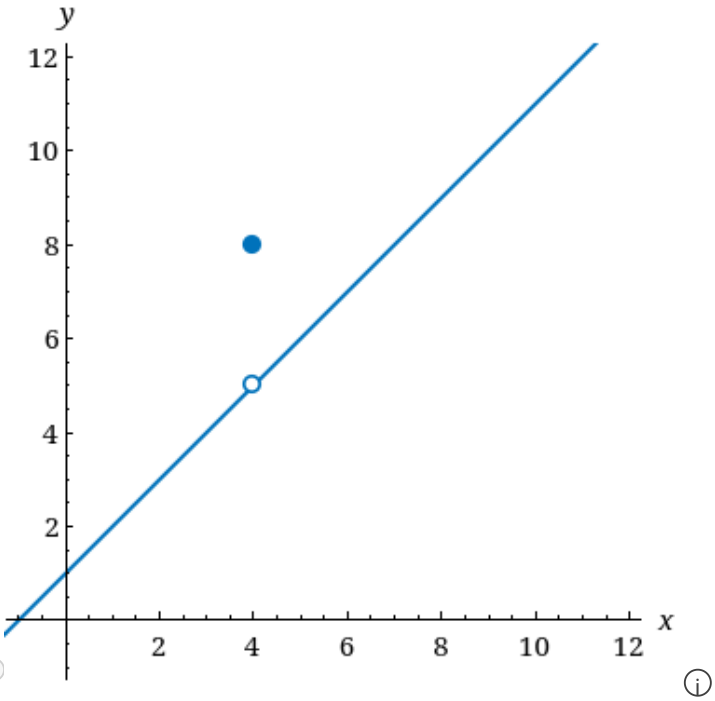
x





✔ Perfect!

Resources

Read It