

# Assignment Previewer

This is a preview of the questions in your assignment, but it does not reflect all assignment settings. Open the student view to interact with the actual assignment.

Show answer key



SHOW NEW RANDOMIZATION



EDIT ASSIGNMENT



INSTRUCTOR

Scott Sutherland

SUNY Stony Brook University

## MAT125 HW1 - precalc review (Homework)

**Due Date:** MON, AUG 31, 2026 8:00 AM EDT

**Current Score:** - / 24 POINTS | 0.0 %

### Scoring and Assignment Information



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

#### Instructions

Each problem is worth 1 point. You get many tries, but only get full credit if the FIRST answer you enter is correct. Subsequent tries get a decreasing amount of partial credit.

Problems completed correctly 48 hours before the due date get a bonus.

Unless otherwise stated, answers should be given in EXACT FORM. That is, don't use 3.14 for Pi, use the pi symbol. Don't write .3333 for 1/3, write 1/3. And so on.

#### 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 last submission is used for your score.

1. [- / 1 Points]

DETAILS

SCalcCC5 QP.1.004.

Determine whether the relation represents  $y$  as a function of  $x$ .

|                               |    |    |   |   |   |
|-------------------------------|----|----|---|---|---|
| <b>Input, <math>x</math></b>  | 0  | 1  | 2 | 1 | 0 |
| <b>Output, <math>y</math></b> | -4 | -2 | 0 | 2 | 4 |

- ☐ Yes, the table does represent a function. Each input value is matched with only one output value.
- ☐ No, the table does not represent a function. The input values are each matched with two output values.
- ☐ No, the table does not represent a function. The domain value of 2 is only matched with one output value.
- ☐ No, the table does not represent a function. The input values of 0 and 1 are each matched with two different output values.

2. [- / 1 Points]

DETAILS

SCalcCC5 QP.1.010.

Evaluate the function at each specified value of the independent variable and simplify. (If an answer is undefined, enter UNDEFINED.)

$$f(x) = \sqrt{x + 1} + 1$$

(a)  $f(-1)$ (b)  $f(3)$ (c)  $f(x - 1)$

3. [- / 1 Points]

DETAILS

SCalcCC5 QP.1.012.MI.

Evaluate the function at the indicated values. (If an answer is undefined, enter UNDEFINED.)

$$f(x) = \frac{|x|}{x}$$

$f(-9) =$

$f(-6) =$

$f(0) =$

$f(3) =$

$f(x^2) =$

$f\left(\frac{1}{x}\right) =$

4. [- / 1 Points]

DETAILS

SCalcCC5 QP.2.002.MI.

A tank holds 75 gallons of water, which drains from a leak at the bottom, causing the tank to empty in 32 minutes. The tank drains faster when it is nearly full because the pressure on the leak is greater. Toricelli's law gives the volume of water remaining in the tank after  $t$  minutes as

$$V(t) = 75 \left( 1 - \frac{t}{32} \right)^2 \quad 0 \leq t \leq 32.$$

- (a) Find  $V(0)$  and  $V(32)$ .

$$V(0) = \boxed{\phantom{000}}$$

$$V(32) = \boxed{\phantom{000}}$$

- (b) What do your answers to part (a) represent?

- ☐  $V(32)$  represents the initial volume, and  $V(0)$  represents the final volume.  
☐  $V(0)$  represents the initial volume, and  $V(32)$  represents the final volume.

- (c) Make a table of values of  $V(t)$  for  $t = 0, 8, 16, 24, 32$ .

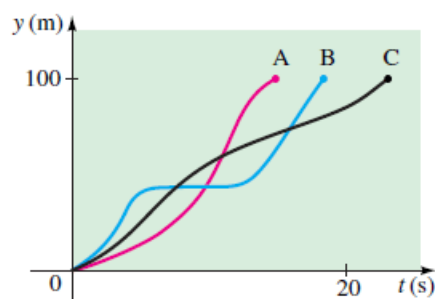
| $t$ (in minutes) | $V(t)$ (in gallons)  |
|------------------|----------------------|
| 0                | <input type="text"/> |
| 8                | <input type="text"/> |
| 16               | <input type="text"/> |
| 24               | <input type="text"/> |
| 32               | <input type="text"/> |

5. [- / 1 Points]

DETAILS

SCalcCC5 QP.2.012.

Three runners compete in a 100-meter hurdle race. The graph below depicts the distance run as a function of time for each runner.



Who won the race?

- ☐ A
- ☐ B
- ☐ C

Did each runner finish the race?

- ☐ yes
- ☐ no

What do you think happened to runner B?

- ☐ Runner B increased speed the first part of the race, ran at a constant speed during the middle of the race, then increased speed the last part of the race.
- ☐ Runner B stopped running and walked the rest of the race.
- ☐ Runner B ran the first part of the race, walked during the middle, then ran the last part of the race.
- ☐ Runner B fell, but got up and finished the race.

6. [- / 1 Points]

DETAILS

SCalcCC5 QP.3.010.MI.

Find  $f(a)$ ,  $f(a + h)$ , and the difference quotient  $\frac{f(a + h) - f(a)}{h}$ , where  $h \neq 0$ .

$$f(x) = \frac{4}{x + 6}$$

$$f(a) = \boxed{\phantom{000}}$$

$$f(a + h) = \boxed{\phantom{000}}$$

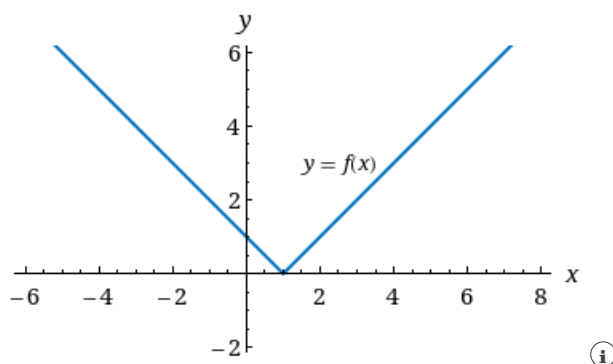
$$\frac{f(a + h) - f(a)}{h} = \boxed{\phantom{000}}$$

7. [- / 1 Points]

DETAILS

SCalcCC5 QP.4.008.

Use the graph of the function to find the domain and range of  $f$ . (Enter your answer using interval notation.)



Domain

Range

8. [- / 1 Points]

DETAILS

SCalcCC5 QP.5.003.

Solve the equation for  $x$ .

$$a^2x + (a - 8) = (a + 8)x$$

$$x = \boxed{\phantom{000}}$$

9. [- / 1 Points]

DETAILS

SCalcCC5 QP.5.007.MI.

Solve the equation and check your solution.

$$3y + 1 = 4y - 3 + 2y$$

 $y =$

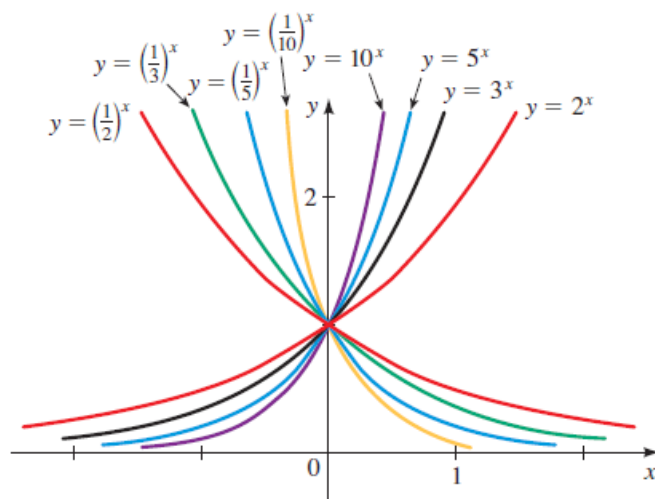
10. [- / 1 Points]

DETAILS

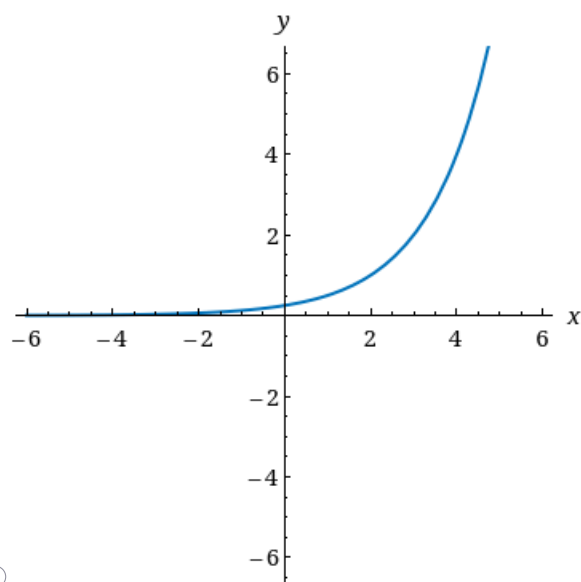
SCalcCC5 QP.16.003.

Graph the function, not by plotting points, but by starting from the graphs below.

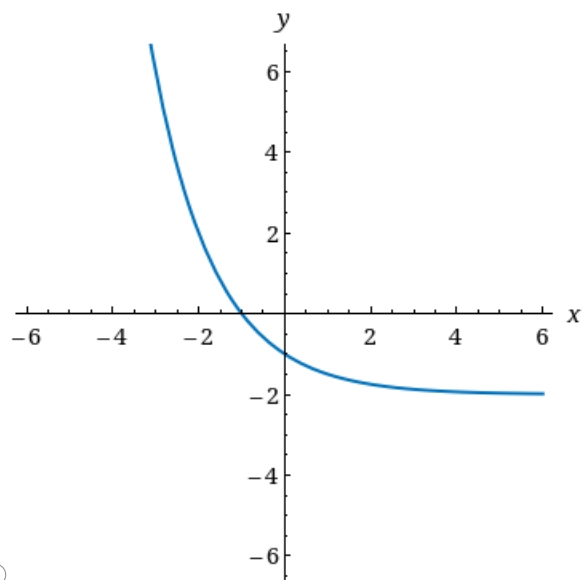
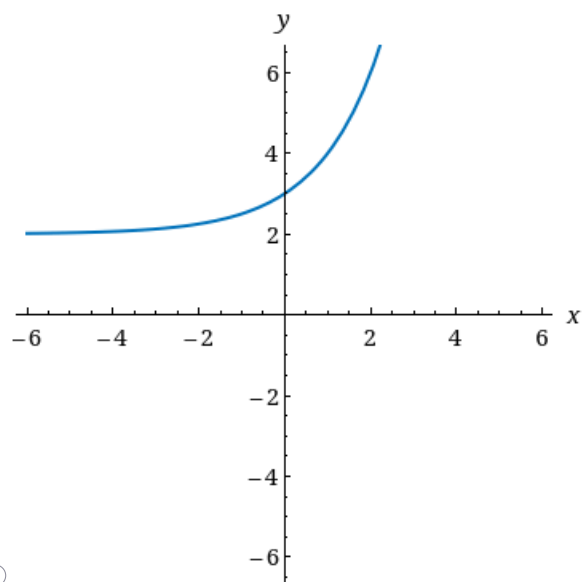
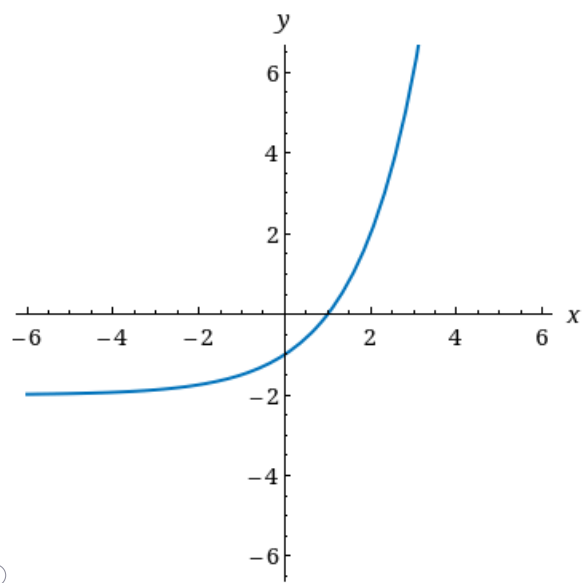
$$g(x) = 2^x - 2$$



i



i

☐☒☐☒☐☒

State the domain and range. (Enter your answers using interval notation.)

Domain

Range

State the asymptote.

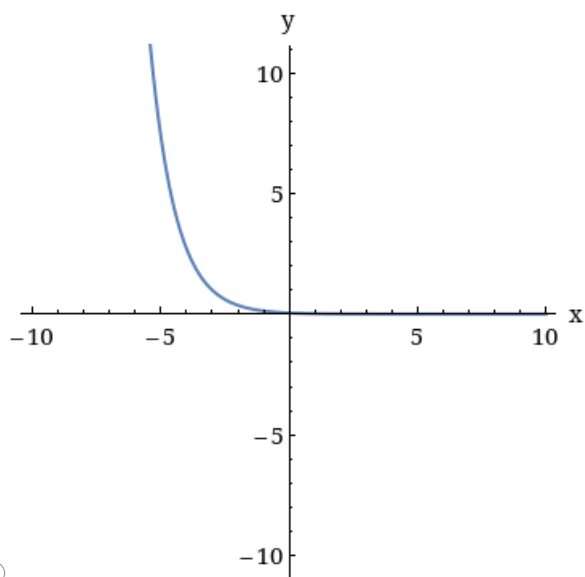
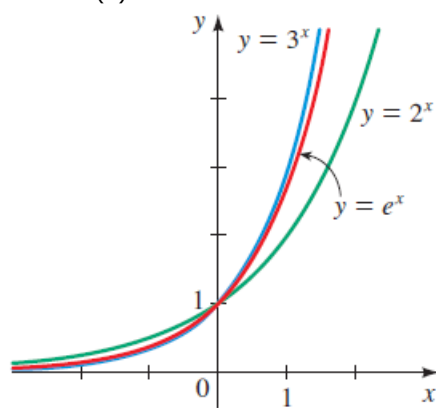
11. [- / 1 Points]

DETAILS

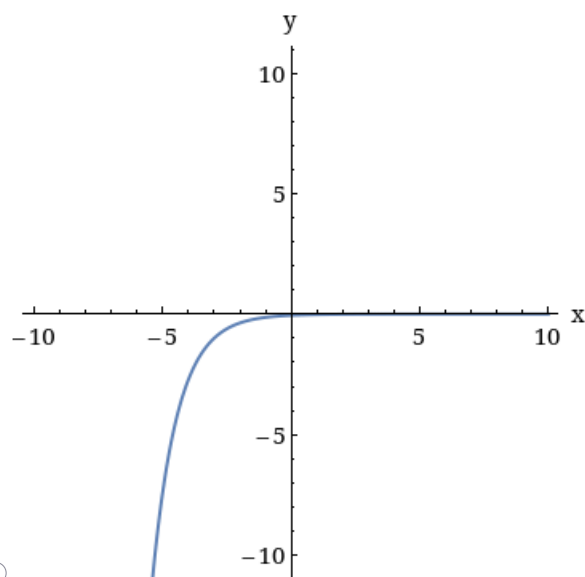
SCalcCC4 QP.16.008.

Graph the function, not by plotting points, but by starting from the graph of  $y = e^x$  in the figure below.

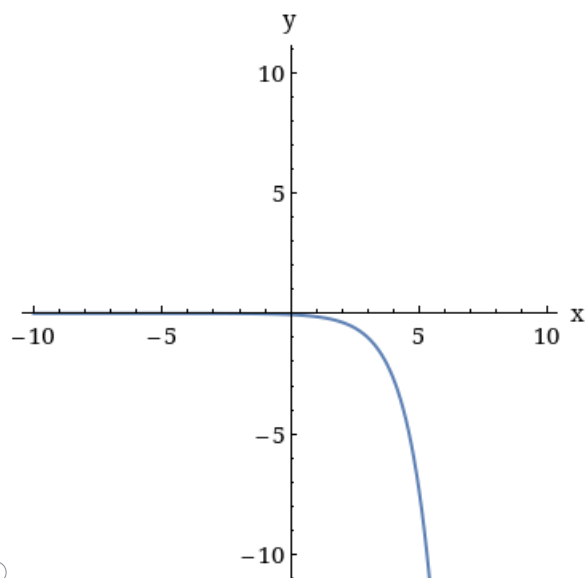
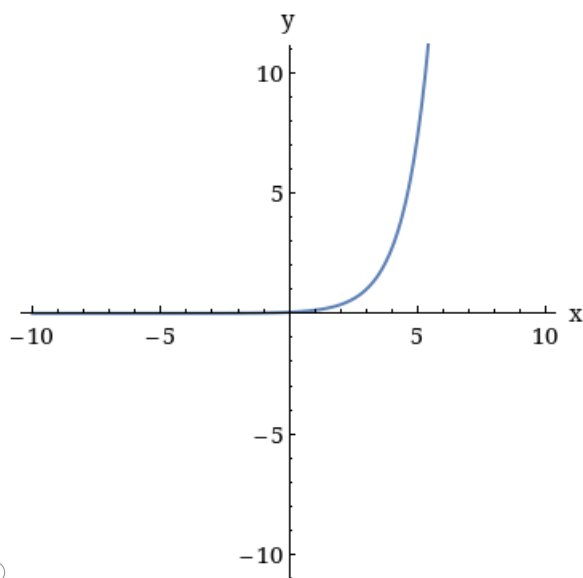
$$f(x) = e^x - 3$$



○



○



State the domain and range.

Domain:

- ☐  $(0, \infty)$   
☐  $(-3, \infty)$   
☐  $(-e, \infty)$   
☐  $(-\infty, 3]$   
☐  $(-\infty, \infty)$

Range:

- ☐  $(-3, \infty)$   
☐  $(-\infty, 3]$   
☐  $(-e, \infty)$   
☐  $(0, \infty)$   
☐  $(-\infty, \infty)$

State the asymptote.

Read more about Topic 16: Exponential functions

12. [- / 1 Points]

DETAILS

SCalcCC5 QP.16.010.

Use the one-to-one property to solve the equation for  $x$ .

$$4^{x-7} = \frac{1}{64}$$

$x =$

13. [- / 1 Points]

DETAILS

SCalcCC5 QP.17.002.MI.

Evaluate the expression.

(a)  $\log_3\left(\frac{1}{81}\right)$

(b)  $\log_9(\sqrt{9})$

(c)  $\log_{10}\left(\frac{1}{10}\right)$

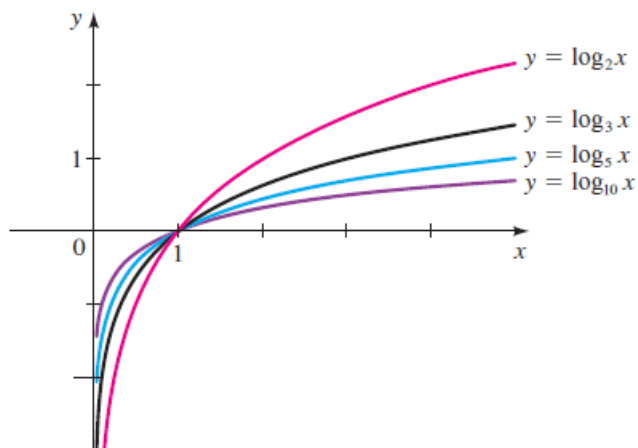
14. [- / 1 Points]

DETAILS

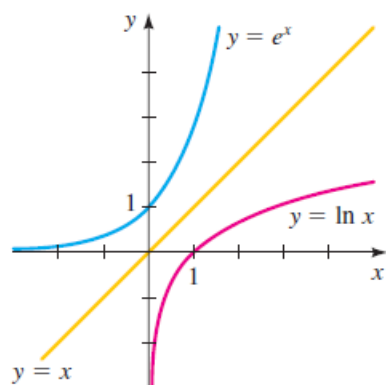
SCalcCC5 QP.17.004.

Graph the function, not by plotting points, but by starting from the graphs in the figures below.

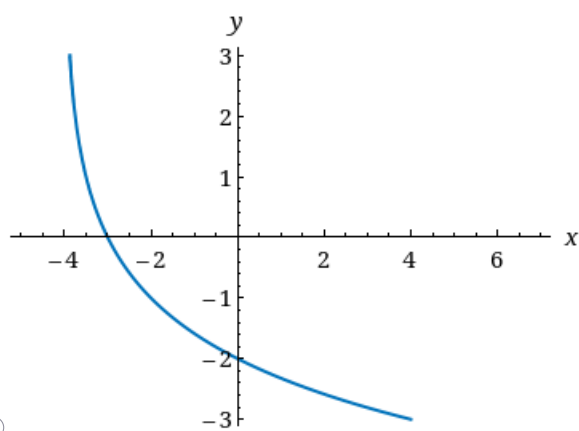
$$f(x) = \log_2(x - 4)$$



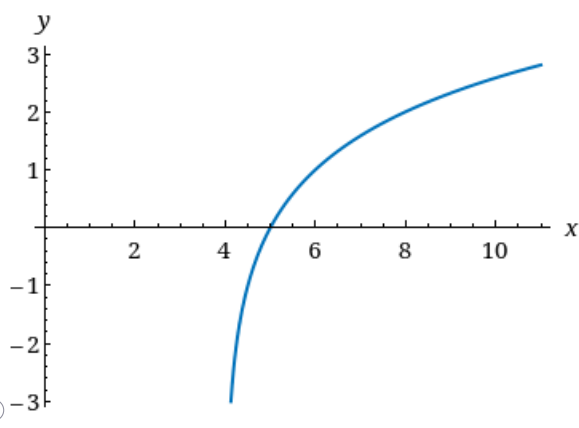
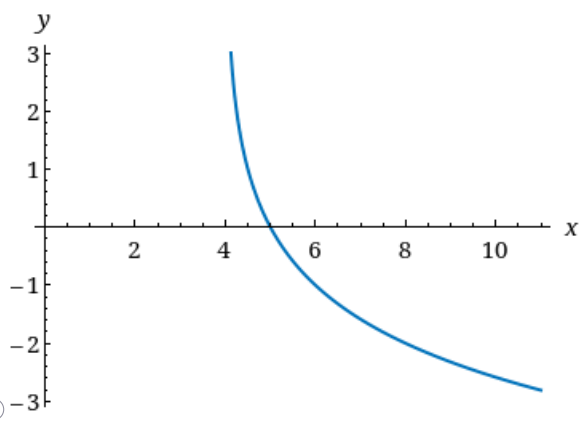
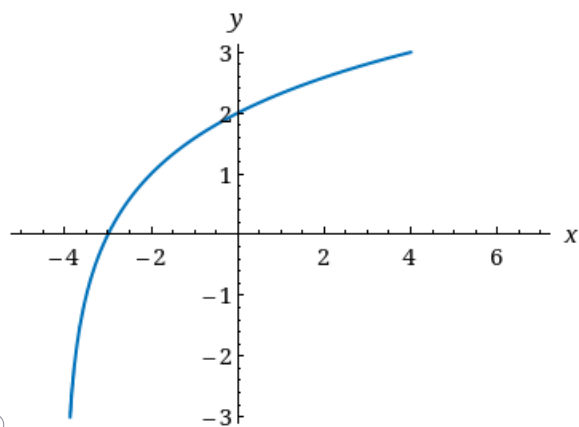
i



i



i



State the domain and range. (Enter your answers using interval notation.)

domain

range

State the asymptote.

15. [- / 1 Points]

DETAILS

SCalcCC5 QP.17.007.

Find the domain of the function. (Enter your answer using interval notation.)

$$h(x) = \ln(x) + \ln(7 - x)$$

16. [- / 1 Points]

DETAILS

SCalcCC5 QP.17.009.

Use the laws of logarithms to expand the expression.

$$\log\left(\frac{x^7 y^8}{z^7}\right)$$

17. [- / 1 Points]

DETAILS

SCalcCC5 QP.17.014.MI.

Solve the logarithmic equation for  $x$ .

$$\log(10x + 4) = 2$$

$$x = \boxed{\phantom{000}}$$

18. [- / 1 Points]

DETAILS

SCalcCC5 QP.15.010.

Simplify the difference quotient by rationalizing the numerator.

$$\frac{\sqrt{x+h-5} - \sqrt{x-5}}{h}$$

19. [- / 1 Points]

DETAILS

SCalcCC5 QP.18.001.MI.

Evaluate (if possible) the sine, cosine, and tangent of the real number. (If not possible, enter IMPOSSIBLE.)

$$t = \frac{11\pi}{6}$$

$\sin(t) =$

$\cos(t) =$

$\tan(t) =$

20. [- / 1 Points]

DETAILS

SCalcCC5 QP.18.007.MI.

Evaluate the trigonometric function using its period as an aid.

$$\cos\left(-\frac{9\pi}{2}\right)$$

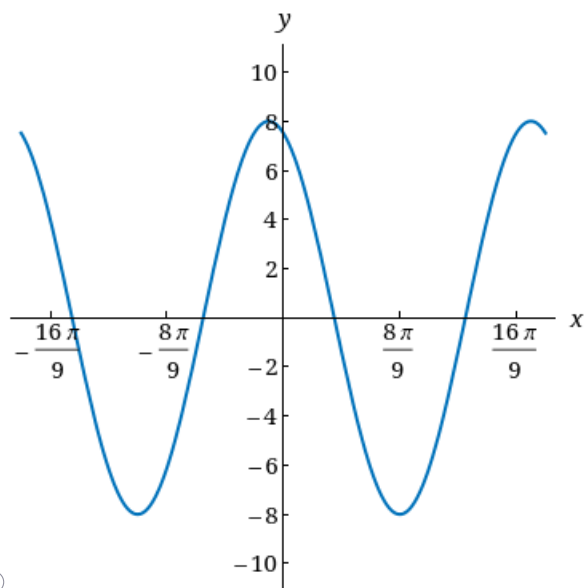
21. [- / 1 Points]

DETAILS

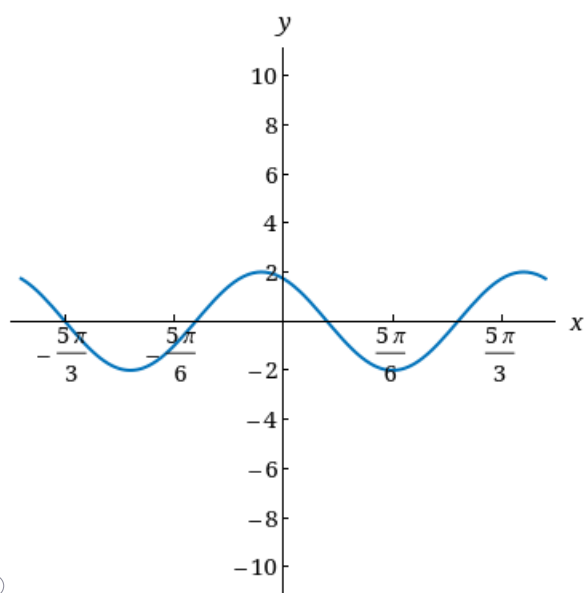
SCalcCC5 QP.19.001.MI.

Sketch the graph of the function.

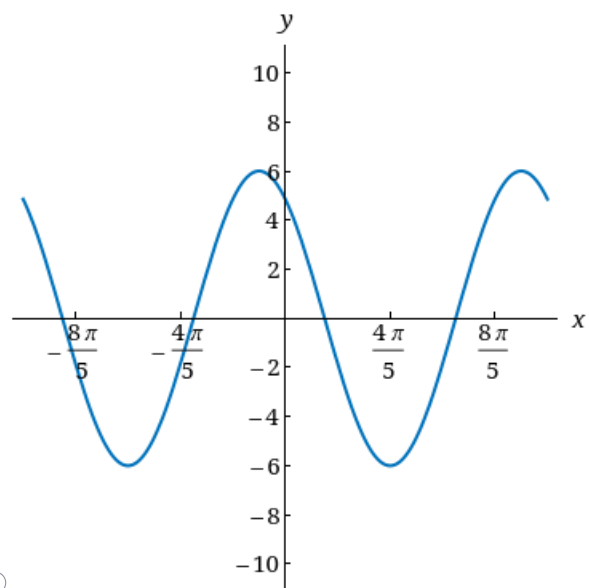
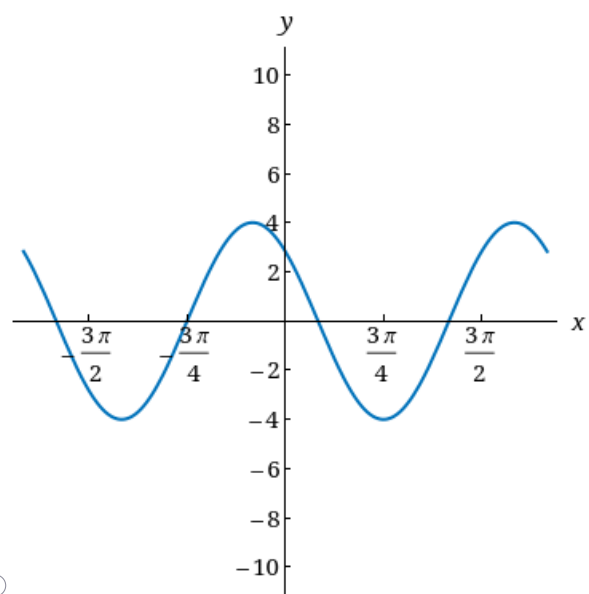
$$y = 4 \cos\left(x + \frac{\pi}{4}\right)$$



i



i

☐☐☐☐

22. [- / 1 Points]

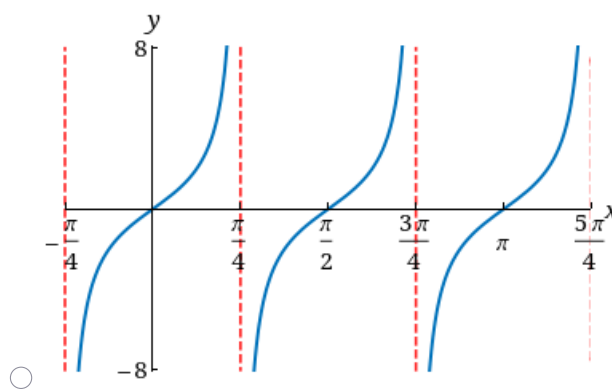
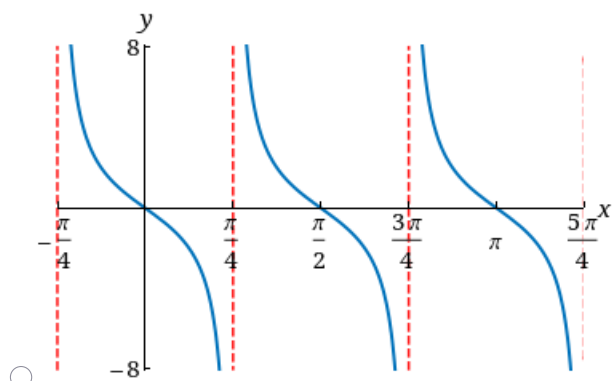
DETAILS

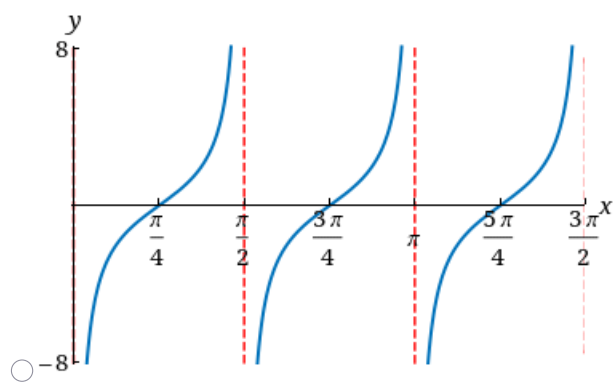
SCalcCC5 QP.19.008.

Find the period of the function.

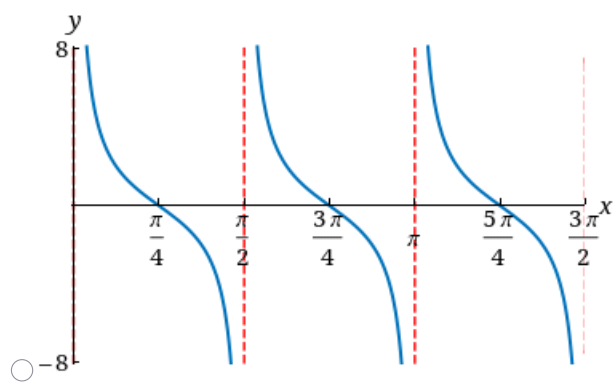
$$y = 2 \tan(2(x - \pi))$$

Graph the function.





(i)



(i)

23. [- / 1 Points]

DETAILS

SCalcCC5 QP.20.003.MI.

Use the fundamental identities to simplify the expression. There is more than one correct form of the answer.

$$9 \sec^2(x) (1 - \sin^2(x))$$

24. [- / 1 Points]

DETAILS

SCalcCC5 QP.20.004.MI.

Factor the expression and use the fundamental identities to simplify. There is more than one correct form of the answer.

$$7 \sin^2(x) \csc^2(x) - 7 \sin^2(x)$$