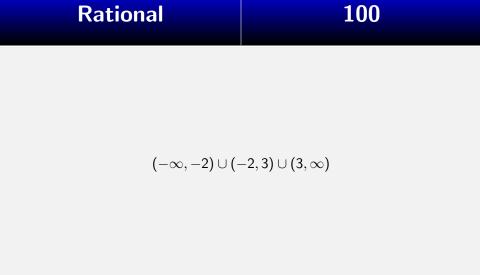
| Rationals | Exponential | Logarithm | Log Prop | Grab Bag |
|-----------|-------------|-----------|----------|----------|
| 100       | 100         | 100       | 100      | 100      |
| 200       | 200         | 200       | 200      | 200      |
| 300       | 300         | 300       | 300      | 300      |
| 400       | 400         | 400       | 400      | 400      |
| 500       | 500         | 500       | 500      | 500      |

Rational

What is the domain of  $f(x) = \frac{x^2-16}{x^2-x-6}$ ?

100

Question Done!
Answer Home



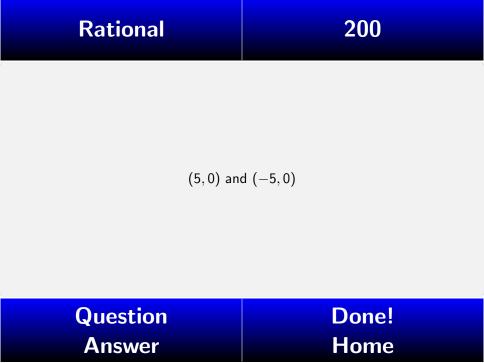
# Question Done! Answer Home

200

What are the zeros of  $f(x) = \frac{x^2-25}{x^2+x-6}$ ?

Question

QuestionDone!AnswerHome



#### Rational

300

Find all asymptotes of the equation  $f(x) = \frac{5x-15}{x-4}$ .

QuestionDone!AnswerHome

# Horizontal: y = 5

Vertical: x = 4

300

Home

Rational

Answer

# Question Done!

#### Rational

400

Determine the equation for a rational function if the x-intercept of the function is (4,0), the y-intercept is (0,-2), and the equations of the asymptotes are y=-1 and x=2.

Question Answer

Rational 400  $y = \frac{-x+4}{x-2}$ 

Question Done!
Answer Home

#### Rational

500

A T-shirt manufacturer has found the cost of running their business to be \$6 per T-shirt and has overhead costs of \$1,300. Write a function that represents the average cost for producing x T-shirts.

Question Answer

### Rational 500 $y = \frac{6x + 1300}{x}$

### Question

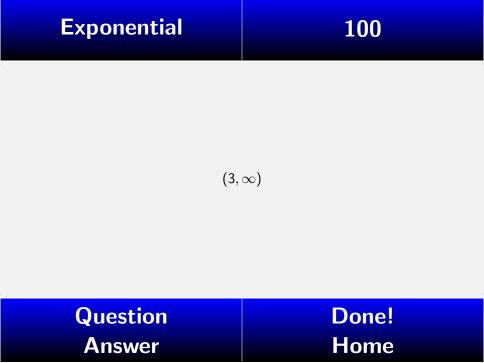
**Answer** 

100

Let  $f(x) = 3 \cdot \left(\frac{5}{3}\right)^x + 3$ . What is the range of f(x)?

Question

Answer



200

How much money should you invest at 7.5% compounded quarterly so that you have \$10,000 after 5 years?

Question Answer

n Done!

Home



300

A piece of machinery, initially purchased for \$25,000 decreases in value by 1.4% per year. Determine a model of the form  $y = C \cdot b^x$  that can be used to predict the value of this machinery if x is measured in years.

Question Answer

300

 $y = 25,000(0.986)^x$ 

Question

**Answer** 

Done!

400

A species of snake was introduced in an area 10 years ago. It is estimated that there are 3,500 snakes in the area now, and the population has a continuous exponential growth rate of 7% per year. How many snakes will there be 20 years from now?

Question Answer

400

14,193 snakes will be present 20 years from now.

Question

Done! **Answer** Home

**500** 

**Exponential** 

What is the doubling time for a population of rabbits that grows from 60 to 500 in 18 months?

Question Done!
Answer Home

#### **Exponential** 500 5.885 months Question Done! **Answer** Home

100

Write the following as a logarithm:

$$245^{\frac{1}{2}} = x$$

#### Question Answer

### Logarithm 100 $\log_{245}(x) = \frac{1}{2}$ Done! Question

Home

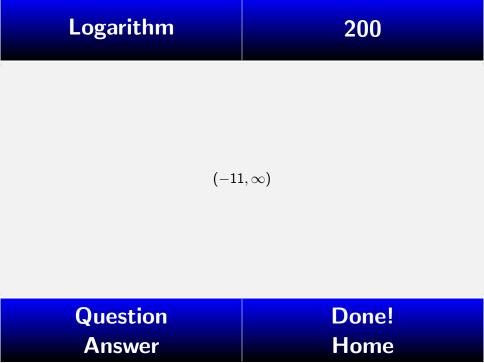
**Answer** 

200

What is the domain of  $log_3(x+11)$ ?.

Question

**Answer** 



300

Solve the equation  $3\log_2(x) = 4$ .

Question Answer

x = 2.52

Question **Answer** 

400

A pork roast is removed from a freezer that is  $22^{\circ}F$  and placed in a room that is  $77^{\circ}F$ . The number of minutes that it takes the temperature of the roast to reach x degrees Fahrenheit is given by the formula  $T = \frac{100}{3} \ln \left( \frac{50}{77-x} \right).$  If 20 minutes have passed, what is the temperature of the pork roast?

Question Answer

Home

Done!

400

Approximately 50 minutes have elapsed since the pork roast was removed from the freezer.

#### Question Answer

n Done! Home

#### Logarithm 500 Solve for x. $\frac{e^x + 5}{e^3 x} = e^{x-1}$

Question Done!
Answer Home

## Logarithm 500 x = 2

Question

**Answer** 

## Done!

Home

Expand as far as possible  $\ln\left(\frac{e^2}{3}\right)$ 

Question

Log Prop

Question Done!
Answer Home

100

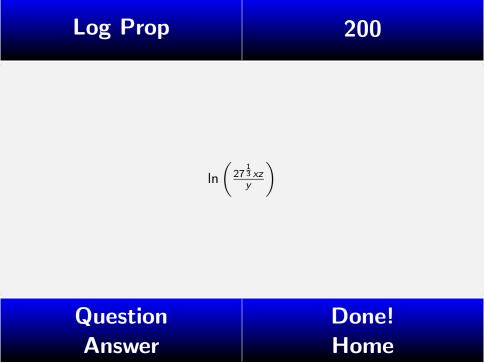
# Log Prop 100 $2 - \ln(3)$

## Log Prop

200

Write as a single logarithm:  $\ln(x) + \frac{1}{3}\ln(27) - \ln(y) + \ln(z)$ 

Question Done!
Answer Home



## Log Prop

300

Expand as far as possible:  $\log_5\left(\frac{ab^2}{5cd}\right)$ 

Question

**Answer** 

# $\log_5(a) + 2\log_5(b) - 1 - \log_5(c) - \log_5(d)$

300

Home

Log Prop

**Answer** 

## Question Done!

Log Prop

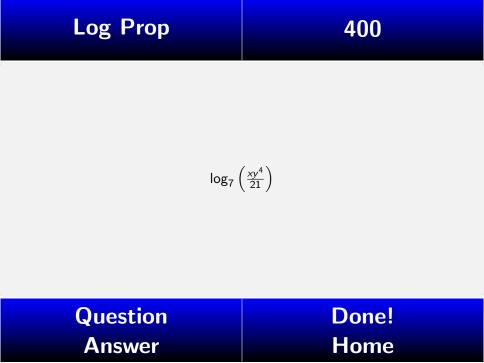
Answer

Write as a single logarithm:  $\log_7(x) - \log_7(3) + 4\log_7(y) - 1$ 

400

Home

Question Done!



# Log Prop

500

Solve the following for *x* 

 $\log(2x+1) - \log(x-2) = 1$ 

Question Answer

n Done!

Home

# Log Prop **500** $x = \frac{21}{8}$

Question Done!
Answer Home

#### 100

Suppose a cost-benefit model is given by  $T = f(x) = \frac{22x}{100-x}$ , where T is the time in minutes, to memorize x random facts. Approximately how many facts can be memorized if a person studies for 30 minutes?

- (a) Less than 15 facts
- (b) Between 15 and 30 facts
- (c) Between 30 and 45 facts
- $(\mathrm{d})$  Between 45 and 60 facts
- (e) More than 60 facts

## Question

#### Done! Home

# **Grab Bag** 100 (d) Between 45 and 60 facts

# Question Done! Answer Home

#### 200

Determine a formula for the exponential function of the form  $y = C \cdot b^x$ that passes through the points (-1,3) and (2,192).

- (a)  $y = 12 \cdot 4^x$
- (b)  $y = 3 \cdot 64^x$
- (c)  $y = 3 \cdot 63^x$
- (d)  $y = 3 \cdot 8^x$

## Question

Done! Home

Answer

# **Grab Bag** 200 (a) $y = 12 \cdot 4^x$

# Question Done! Answer Home

## 300

Determine a formula for the inverse function,  $f^{-1}(x)$  for  $f(x) = 2^{x-5}$ .

- (a)  $f^{-1}(x) = 5^{x+2}$ (b)  $f^{-1}(x) = \log_2(x+5)$
- (c)  $f^{-1}(x) = \log_2(x-5)$
- (d)  $f^{-1}(x) = \log_2(x) + 5$
- (e)  $f^{-1}(x) = 2^{x+5}$

## Question

### Answer

Done! Home

# $(d) \ f^{-1}(x) = \log_2(x) + 5$

300

Home

Grab Bag

**Answer** 

## Question Done!

#### 400

Solve the equation:

$$\log_9(x-3) + \log_9(2x+1) = 1$$

- (a)  $x = -\frac{3}{2}, 4$  only
- (b)  $x = \frac{11}{3}$  only
- (c)  $x = -\frac{1}{2}, 3$  only
- (d) x = 3 only
- (e) x = 4 only

#### Question Answer

#### n Done! r Home

## **Grab Bag** 400 (e) x = 4 only Question Done! **Answer** Home

#### 500

The population of a species of bird grows from 1300 to 1840 in 6 years. Use the exponential growth model  $A(t) = Pe^{kt}$  with t measured in years, to determine the value of k. The value of k is:

- (a) More than 0.063
- (b) Between 0.059 and 0.063
- (c) Between 0.055 and 0.059
- (d) Between 0.051 and 0.055
- (e) Less than 0.051

### Question Answer

#### Done! Home

# **Grab Bag** (c) Between 0.055 and 0.059

500

#### Question Done! **Answer** Home