

GET A CALCULATOR!!!

Warm Up 11/(Last Friday's Date + 3)

1. Write 25% as a decimal.
2. Write 160% as a decimal.
3. What is 25% of 20?
4. What is 100% of 8?
5. What is 150% of 6?

Returning the Quizzes

NO QUIZ THIS WEEK.

Discussion...

- Exponential Functions have the form

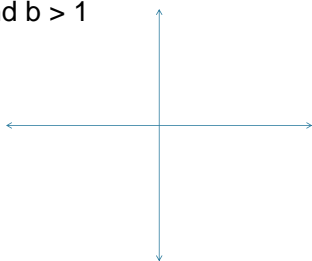
$$f(x) = ab^x \text{ where } a \neq 0, b \neq 1, \text{ and } b > 0$$

- Why can't a equal 0?
- Why can't b equal 1?
- Why can't b be negative?

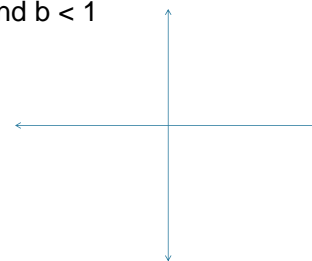
Sketch a Graph

An exponential function
where $a > 0$ and $b > 1$

$$f(x) = ab^x$$

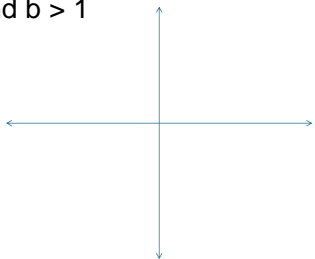


Sketch a Graph

An exponential function
where $a > 0$ and $b < 1$ 

Sketch a Graph

An exponential function
where $a < 0$ and $b > 1$



Sketch a Graph

An exponential function
where $a < 0$ and $b < 1$

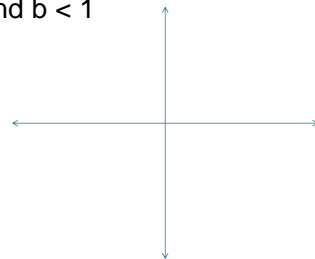


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OBJECTIVE:

- Use exponential functions to model real-world situations

Percents Questions...

- If I have \$200 and I increase my money by 25% every day, how much will I have after 1 day?
- How much will I have after 3 days?
- How much will I have after 28 days?

Write an Equation for the Situation

Annual sales for a company
are \$149,000 and are
increasing at a rate of 25%
per year.

$$f(x) = 149,000(1.25)^x$$

Write an Equation for the Situation

Annual sales for a company are \$149,000 and are decreasing at a rate of 25% per year.

$$f(x) = 149,000(0.75)^x$$

Write an Equation for the Situation

The original value of a painting is \$1400, and the value increases by 9% each year.

Growth or Decay?

$$f(x) = 1400(1.09)^x$$

Write an Equation for the Situation

The cost of tuition at a college is \$12,000 and is increasing at a rate of 6% per year.

Growth or Decay?

Exponential; $f(x) = 12000(1.06)^x$

The fish population in a local stream is decreasing at a rate of 3% per year. The original population was 48,000. Write a function to model this situation. Then find the population after 7 years.

Growth or Decay?

$$y = 48,000 (0.97)^x; 38,783$$

Growth & Decay Equations with Percents

$$f(x) = a(b)^x$$

GROWTH: Growth factor (**b**) = 1 + the percent as a decimal

DECAY: Growth factor (**b**) = 1 - the percent as a decimal

Homework

■ Worksheet