

LESSON
9.9

Practice C

For use with the lesson "Modeling Relationships"

Solve the system of equations.

- Gustavo purchased a boat for \$5,500. The boat decreases in value annually. Sketch a graph to model the value of the boat after a given number of years.
- Use the given information to decide which linear function increases at the greatest rate.
 - Linear Function 1 is a function whose equation is $y = \frac{1}{5}x - 2$.
 - Linear Function 2 has a graph that passes through points $(-5, 3)$ and $(1, 3)$.
 - Linear Function 3 has an x -intercept of -2 and a y -intercept of 1 .
- Use the given information to decide which exponential function has the greater decay rate.
 - Exponential Function 1 is a function whose equation is $y = \left(\frac{1}{3}\right)^x$.
 - Exponential Function 2 has a graph that includes the points $\left(-1, \frac{4}{3}\right)$, $(0, 1)$, $\left(1, \frac{3}{4}\right)$, and $\left(2, \frac{9}{16}\right)$.
- Roofs** Arches support the roofs of a neighboring hotel and theater. The arches of the hotel can be modeled with the equation $y = -0.0022x^2 + 0.56x$. The arches of the theater can be modeled with the equation $y = -0.0025x^2 + 0.49x$. Both are x and y are in feet. Determine which arches have the greater height at their highest point.
- Coins** Syree purchases a coin for \$30. The table below shows the value of the coin over time.

Year	0	1	2	3
Value (\$)	30	33	36.30	39.93

- Indicate whether the value of the coin represents a growth or decay model. Explain.
- Determine the growth or decay rate.