

# HW #29

Name \_\_\_\_\_

## Section 1 - No Calculator

**MATCHING GRAPHS** Match the function with its graph.

19.  $y = 2 \cdot 5^x$  **C**

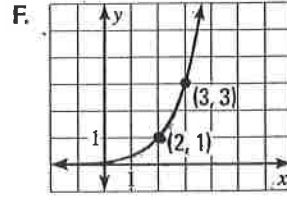
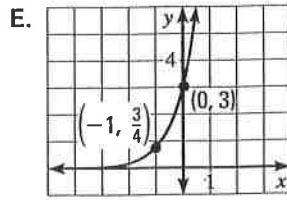
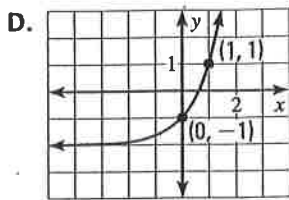
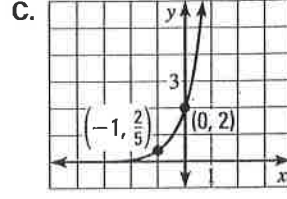
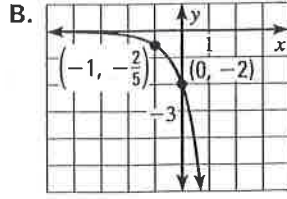
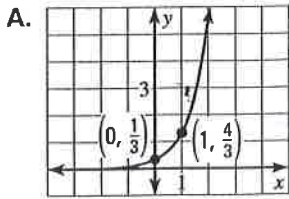
20.  $y = 3 \cdot 4^x$  **E**

21.  $y = -2 \cdot 5^x$  **B**

22.  $y = \frac{1}{3} \cdot 4^x$  **A**

23.  $y = 3^{x-2}$  **F**

24.  $y = 3^x - 2$  **D**



## Section 2 - Calculator

11. **POPULATION** The population of Winnemucca, Nevada, can be modeled by  $P = 6191(1.04)^t$  where  $t$  is the number of years since 1990. What was the population in 1990? By what percent did the population increase each year?
12. **ACCOUNT BALANCE** You deposit \$500 in an account that pays 3% annual interest. Find the balance after 2 years if the interest is compounded with the given frequency.

A) 6191

B) 4%

$P = 500(1 + \frac{.03}{1})^{12}$

- a. annually      b. quarterly      c. daily

\$530.45

\$530.80

\$530.92

**DEPRECIATION** In Exercises 50–52, use the following information.

You buy a new car for \$22,000. The value of the car decreases by 12.5% each year.

50. Write an exponential decay model for the value of the car. Use the model to estimate the value after 3 years.

14,738

$A = P(1-r)^t$

$A = 22,000(1-.125)^t$

52. Estimate when the car will have a value of \$8000.

7.6 years

**COMPUTERS** In Exercises 53–55, use the following information.

You buy a new computer for \$2100. The value of the computer decreases by about 50% annually.

53. Write an exponential decay model for the value of the computer. Use the model to estimate the value after 2 years.

$V = 2100(.5)^t$       \$525

**WRITING MODELS** In Exercises 56–58, write an exponential growth model that describes the situation.

56. **COIN COLLECTING** You buy a commemorative coin for \$110. Each year  $t$ , the value  $V$  of the coin increases by 4%.  $V = 110(1.04)^t$

57. **SAVINGS ACCOUNT** You deposit \$400 in an account that pays 2% annual interest compounded quarterly.  $A = 400(1.005)^{4t}$

58. **ANTIQUES** You purchase an antique table for \$525. Each year  $t$ , the value  $V$  of the table increases by 5%.  $V = 525(1.05)^t$

**ACCOUNT BALANCE** In Exercises 59–61, use the following information. You deposit \$1600 in a bank account. Find the balance after 3 years for each of the following situations.

59. The account pays 2.5% annual interest compounded monthly. \$1724.48

60. The account pays 1.75% annual interest compounded quarterly. \$1686.05

61. The account pays 4% annual interest compounded yearly. \$1799.78