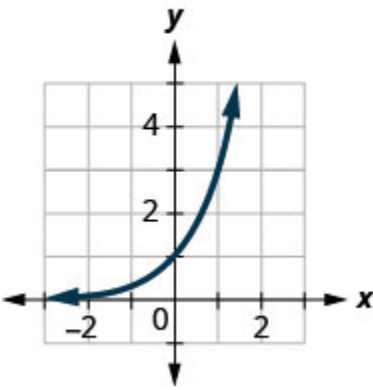


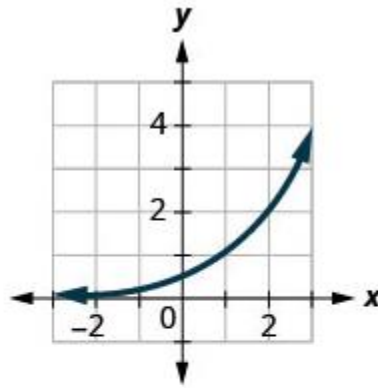
Match the equations with the graphs below

A)  $y=2^x$  B)  $y=2^{x+1}$  C)  $y=2^{x-1}$  D)  $y=2^x+2$  E)  $y=2^x-2$  F)  $y=3^x$

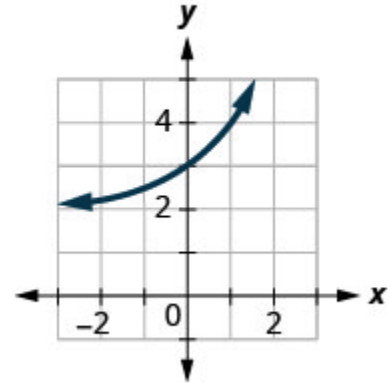
109.



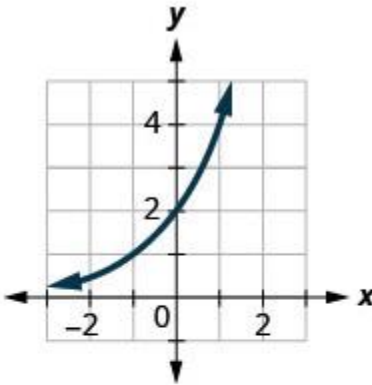
112.



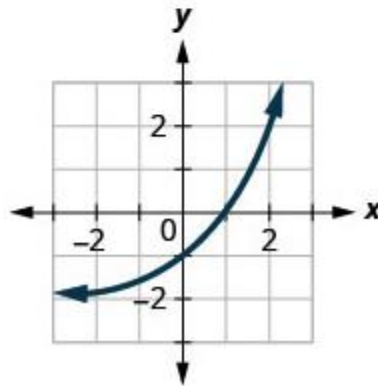
114.



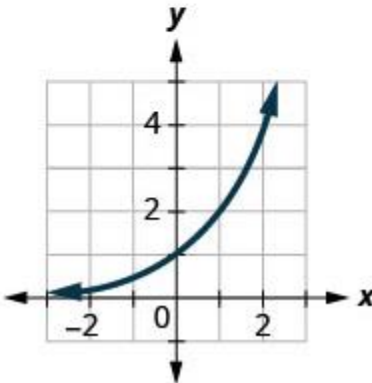
110.



113.



111.



### EXAMPLE 10.16

A total of \$10,000 was invested in a college fund for a new grandchild. If the interest rate is 5%, how much will be in the account in 18 years by each method of compounding?

- Ⓐ compound quarterly
- Ⓑ compound monthly
- Ⓒ compound continuously

### EXAMPLE 10.17

Chris is a researcher at the Center for Disease Control and Prevention and he is trying to understand the behavior of a new and dangerous virus. He starts his experiment with 100 of the virus that grows continuously at a rate of 25% per hour. He will check on the virus in 24 hours. How many viruses will he find?

### EXAMPLE 10.17

Chris is a researcher at the Center for Disease Control and Prevention and he is trying to understand the behavior of a new and dangerous virus. He starts his experiment with 100 of the virus that grows continuously at a rate of 25% per hour. He will check on the virus in 24 hours. How many viruses will he find?

In the following exercises, use an exponential model to solve.

115. Edgar accumulated \$5,000 in credit card debt. If the interest rate is 20% per year, and he does not make any payments for 2 years, how much will he owe on this debt in 2 years by each method of compounding? (a) compound quarterly (b) compound monthly (c) compound continuously

116. Cynthia invested \$12,000 in a savings account. If the interest rate is 6%, how much will be in the account in 10 years by each method of compounding? (a) compound quarterly  
(b) compound monthly (c) compound continuously

117. Rochelle deposits \$5,000 in an IRA. What will be the value of her investment in 25 years if the investment is earning 8% per year and is compounded continuously?

118. Nazerhy deposits \$8,000 in a certificate of deposit. The annual interest rate is 6% and the interest will be compounded quarterly. How much will the certificate be worth in 10 years?

119. A researcher at the Center for Disease Control and Prevention is studying the growth of a bacteria. He starts his experiment with 100 of the bacteria that grows at a rate of  $6\%$  per hour. He will check on the bacteria every 8 hours. How many bacteria will he find in 8 hours?

120. A biologist is observing the growth pattern of a virus. She starts with 50 of the virus that grows at a rate of  $20\%$  per hour. She will check on the virus in 24 hours. How many viruses will she find?

121. In the last ten years the population of Indonesia has grown at a rate of  $1.12\%$  per year to 258,316,051. If this rate continues, what will be the population in 10 more years?

122. In the last ten years the population of Brazil has grown at a rate of  $0.9\%$  per year to 205,823,665. If this rate continues, what will be the population in 10 more years?