

**12. Example** Find the value of \$1000 at 8% interest compounded continuously for 20 years.

### **13. Present Value**

#### *Section 5.3—Logarithmic Functions*

**14. Exponential Equations** The one-to-one property.

(a.) Solve for  $x$ :  $2^x = 32$

(b.) Solve for  $x$ :  $9^{x+2} = 3^x$

## **15. Logarithms**

### **16. Example $\log_2 8$**

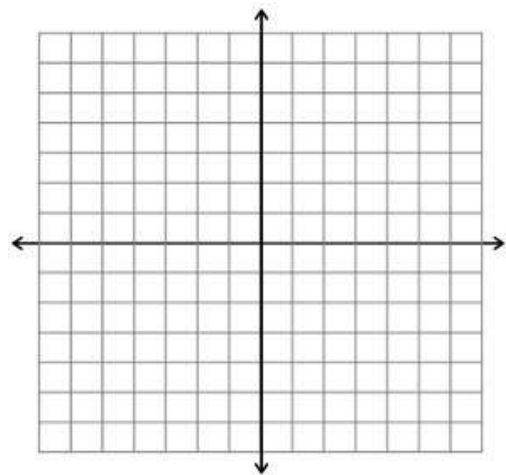
### **17. Some properties**

### **18. Some Special Logarithms**

**19. Inverse Property**

**20. Example**  $\log_2 2^5$

**21. The graph of**  $y = \log_a x$



**22. The Natural Logarithm**

## 23. Log Rules

## 24. Examples

(a.)  $\log_9 27$

(b.)  $\log_a \frac{xy^2}{z^3}$

(c.)  $\log w - \log z - 3\log x + 2\log y$

## 25. Doubling Time

26. **Example** You invest \$4817.25 at 1.2% interest, compounded continuously. How long does it take for your investment to double? What about at 1.5% and 2% interest?

## 27. Half-Life

**28. Example** The Dead Sea Scrolls, discovered in a cave near the Dead Sea in what was then Jordan, are among the earliest documents of Western Civilization. Use the fact that the half-life of Carbon-14 is approximately 5776 years to estimate the age of the dead sea scrolls if the animal skins on which some were written contain 78% of their original Carbon-14.