

## Chapter 13 Review

*Directions: Complete each of the following sets of problems.*

**Solve these exponential and logarithmic expressions using a calculator.**

1. Convert  $5^3=125$  to log form
2. Convert  $4^4=256$  to log form
3. Simplify  $\log_6(6)$
4. Simplify  $\log_3(1)$
5. Simplify  $\log_4(-16)$

**Use the equations below to graph your own trigonometric functions and indicate the amplitude, period, phase shift, and vertical shift.**

**Note: Your answers will be the amplitude, period, phase shift, and vertical shift. You do not need to submit your graphs.**

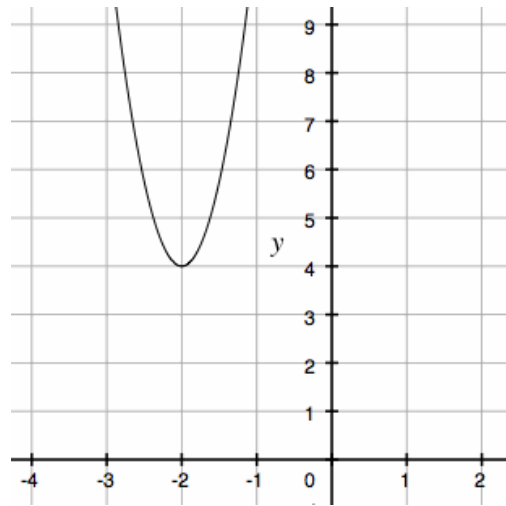
6.  $y=\tan(x-\pi) +1$

7.  $y=\tan (x+3)+2$

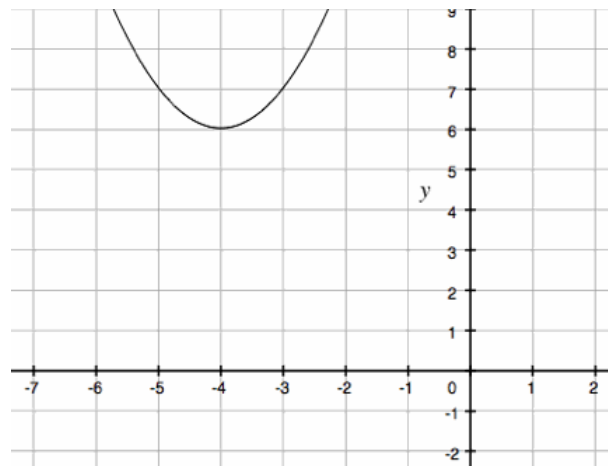
**Use the “Complete the Square” method and what you’ve learned about quadratic functions to match the graphs to their correct function equations. Write the letter that represents the corresponding equation in the number slot of the correct graph.**

- A.  $y=x^2-8x+22$   
B.  $y=8x^2+16x+11$   
C.  $y=7x^2-28x+32$

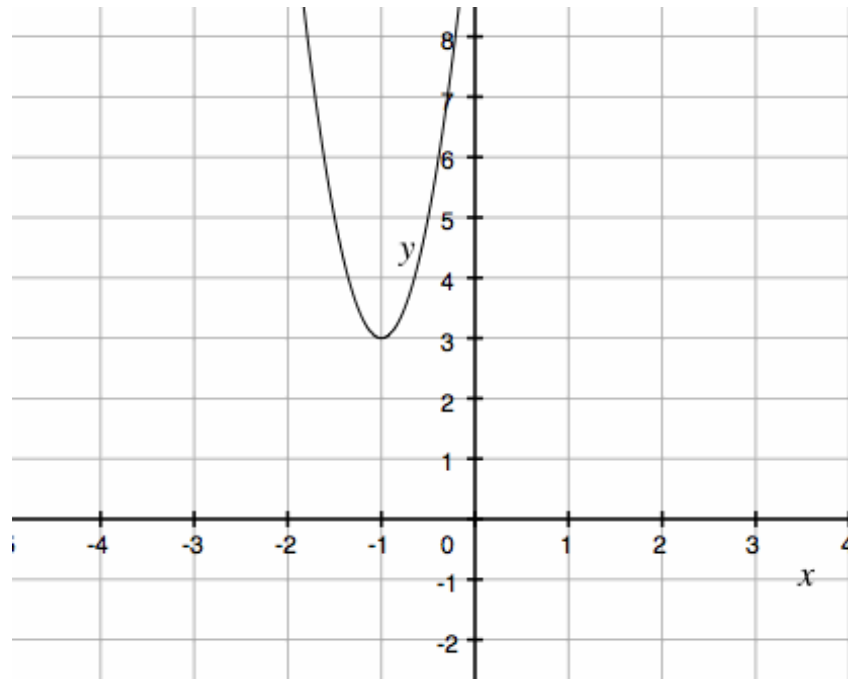
8.     



9.     



10. \_\_\_\_\_



11. Your local bank is offering three promotions: You can make a minimum investment of \$50 and earn an annual interest rate of 2% for five years, a minimum investment of \$100 and earn a quarterly interest rate of 0.5% for five years, or the bank will give you \$25 for opening an account. Which offer will make the most money for you? Show evidence for your choice.

12. In 2009, company is hit by the recession and has to cut employee hourly wages by 4% every year for three years. If an employee's hourly wage was \$11.67 in 2009, what will it be in 2012?

**Give the growth or decay factor for the following rates:**

13. 39% decay
14. 200% growth
15. A population of a town in thousands after  $t$  years is  $50(1.035)^t$ . What is the town's annual growth rate? Monthly growth rate? Growth rate after a decade?

**Create an exponential equation for the following scenarios:**

16. The tire efficiency of a car decreases by 6% every 10 miles over 50mph.
17. The weight gain of a 10-lb baby increases by 4.5% every month.

**Solve these literal equations for the variable given.**

18. Solve the equation  $V = \pi r^2 H$  for  $H$
19. Solve the equation  $V = \pi r^2 H$  for  $R$
20. Solve the equation  $A = \frac{1}{2} (B_1 + B_2) H$  for  $H$

