Student: _____	Instructor: MALGORZATA SUROWIEC
Date: _____	Course: Spring2012_Math1320 – Section_12PM
Time: _____	Book: ~~Blitzer College Algebra 5e~~

Assignment: Test # 3-A

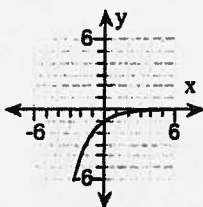1. Graph the function by making a table of coordinates.
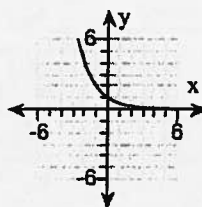
    $f(x) = 2^x$
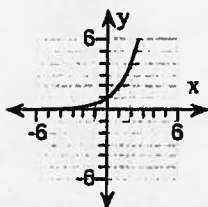
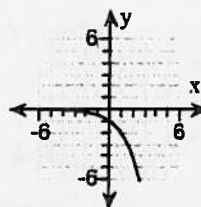   ○A.   ○B.   ○C.   ○D.

2. The size of the beaver population at a national park increases at the rate of 4.1% per year. If the size of the current population is 167, find how many beavers there should be in 6 years. Use the function $f(x) = 167 \, e^{\,0.041t}$ and round to the nearest whole number.

    ○A. 214

    ○B. 212

    ○C. 218

    ○D. 216

3. Use the compound interest formula $A = P\left(1 + \dfrac{r}{n}\right)^{nt}$ to solve. Round to two decimal places.

    Find the accumulated value of an investment of $1,000 at 4% compounded semiannually for 9 years.

    ○A. $1,423.31

    ○B. $1,195.09

    ○C. $1,360.00

    ○D. $1,428.25

4. Write the equation in its equivalent exponential form.

$\log_5 x = 2$

- A. $2^5 = x$
- B. $5^2 = x$
- C. $5^x = 2$
- D. $x^2 = 5$

5. Write the equation in its equivalent logarithmic form.

$c^3 = 216$

- A. $\log_3 216 = c$
- B. $\log_c 3 = 216$
- C. $\log_{216} c = 3$
- D. $\log_c 216 = 3$

6. Find the domain of the logarithmic function.

$f(x) = \log_9 (x + 6)$

- A. $(-6, \infty)$
- B. $(9, \infty)$
- C. $(6, \infty)$
- D. $(-\infty, 0)$ or $(0, \infty)$

7.   Evaluate or simplify the expression without using a calculator.

log 100

    ○A. $\dfrac{1}{2}$

    ○B. $\dfrac{1}{5}$

    ○C. 20

    ○D. 2

8.   Evaluate the expression without using a calculator.

$e^{\ln 13x^4}$

    ○A. $13x^4$

    ○B. 4

    ○C. $\ln 13x^4$

    ○D. e^{13x^4}

9.   Use properties of logarithms to expand the logarithmic expression as much as possible. Where possible, evaluate logarithmic expressions without using a calculator.

$\log_2(2x)$

    ○A. x

    ○B. $1 + \log_2 x$

    ○C. 2

    ○D. 1

10. Use properties of logarithms to expand the logarithmic expression as much as possible. Where possible, evaluate logarithmic expressions without using a calculator.

$$\ln\left(\frac{e^6}{7}\right)$$

- A. $6 - \ln 7$
- B. $6 + \ln 7$
- C. $\ln e^6 - \ln 7$
- D. $\ln e^6 + \ln 7$

11. Use properties of logarithms to condense the logarithmic expression. Write the expression as a single logarithm whose coefficient is 1. Where possible, evaluate logarithmic expressions.

$$\log_6(x - 6) - \log_6(x - 8)$$

- A. $\log_6\left(\frac{x-6}{x-8}\right)$
- B. $\log_6(x^2 - 14x + 48)$
- C. $x \log_6(2)$
- D. $\log_6\left(\frac{x-6}{x+8}\right)$

12. Solve the equation by expressing each side as a power of the same base and then equating exponents.

$$3^{(1+2x)} = 27$$

- A. $\{3\}$
- B. $\{1\}$
- C. $\{-1\}$
- D. $\{9\}$

13. Solve the exponential equation. Use a calculator to obtain a decimal approximation, correct to two decimal places, for the solution.

$4^x = 13$

○A. 3.56

○B. 0.67

○C. 1.85

○D. 0.54

14. Solve the logarithmic equation. Be sure to reject any value that is not in the domain of the original logarithmic expressions. Give the exact answer.

$\log_4(x+2) = 1$

○A. $\{-1\}$

○B. $\{2\}$

○C. $\{6\}$

○D. $\{3\}$

15. Solve the logarithmic equation. Be sure to reject any value that is not in the domain of the original logarithmic expressions. Give the exact answer.

$\log 2x = \log 5 + \log(x-4)$

Choose the correct answer below.

○A. $\left\{\dfrac{20}{3}\right\}$

○B. $\left\{\dfrac{20}{7}\right\}$

○C. $\left\{-\dfrac{20}{7}\right\}$

○D. $\left\{-\dfrac{20}{3}\right\}$

16. The formula $A = 134e^{0.045t}$ models the population of a particular city, in thousands, t years after 1998. When will the population of the city reach 230 thousand?

   ○ A. 2010

   ○ B. 2013

   ○ C. 2012

   ○ D. 2011

17. Determine whether the ordered pair $(-2, 3)$ is a solution of the system.

   $3x + 4y = 6$
   $4x + y = -5$

   ○   solution

   ○   not a solution

18. Solve the system by the addition method.

   $4x + 7y = 34$
   $4x + 2y = 44$

   ○ A. $\{(-2, 12)\}$

   ○ B. $\{(12, -2)\}$

   ○ C. $\{(-12, 4)\}$

   ○ D. $\{(-12, 7)\}$

19. Solve the system of equations.

   $2x + 3y + z = 3$
   $4x - 2y - z = -11$
   $3x + y + 5z = -27$

   ○ A. $\{(-5, 4, -2)\}$

   ○ B. $\{(4, -2, -5)\}$

   ○ C. $\{(-2, 4, -5)\}$

   ○ D. $\{(-2, -5, 4)\}$

20.   Write the form of the partial fraction decomposition of the rational expression. It is not necessary to solve for the constants.

$$\frac{6x - 2}{(x + 2)(x + 3)^2}$$

○A. $\dfrac{A}{x + 2} + \dfrac{B}{x + 3} + \dfrac{C}{x + 3} + \dfrac{D}{(x + 3)^2}$

○B. $\dfrac{A}{x + 2} + \dfrac{B}{x + 3} + \dfrac{C}{(x + 3)^2}$

○C. $\dfrac{A}{x + 2} + \dfrac{B}{x + 3} + \dfrac{Cx + D}{(x + 3)^2}$

○D. $\dfrac{A}{x + 2} + \dfrac{B}{x + 3} + \dfrac{C}{x + 3} + \dfrac{Dx + E}{(x + 3)^2}$

21.   Solve the system by the substitution method.

$x + y = 32$
$\quad y = x^2 - 4x + 4$

○A. $\{(2, 30)\}$

○B. $\{(7, 39), (-4, 36)\}$

○C. $\{(7, 25), (-4, 36)\}$

○D. $\{(-7, 39), (4, 28)\}$

22.   Graph the inequality.
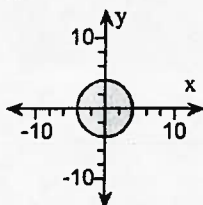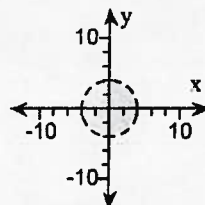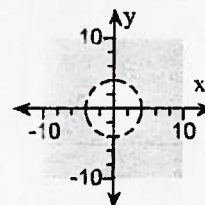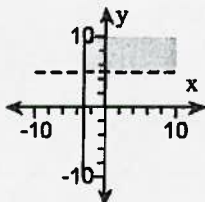
$x^2 + y^2 \leq 16$

○A.   ○B.   ○C.   ○D.
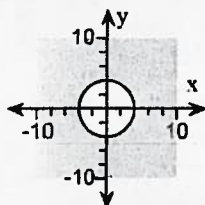
23.   Graph the solution set of the system of inequalities or indicate that the system has no solution.

$y > 5$

$x \geq -3$

A.

B.

C.

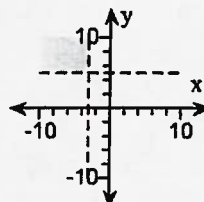D.

$\emptyset$