MS 100   Sample Test 2   (Sec 1.5-1.7)

01. (04 pts) What is the *standard form* of a complex number?

02. (04 pts) Perform the operation and express the answer in standard form: $(6 + 3\,i) + (2 - 5\,i)$

    answer =

03. (04 pts) Perform the operation and express the answer in standard form: $(6 + 3\,i)(2 - 5\,i)$
    answer =

04. (04 pts) Perform the operation and express the answer in standard form: $(6 + 3\,i) - (2 - 5\,i)$

    answer =

05. (04 pts) Perform the operation and express the answer in standard form: $\frac{(6+3\,i)}{(2-5\,i)}$

    answer =

06. (04 pts) The expression $\sqrt{-24}$ is equivalent to which imaginary number:
a) $-\sqrt{24}$ b) $-i\sqrt{24}$ c) $\pm 2\,i\sqrt{6}$ d) $2\,i\sqrt{6}$

07. (04 pts) Use the Quadratic Formula to find the imaginary solutions to $2\,x^2 - 4\,x + 5 = 0$.

08. (04 pts) Solve $(x + 2)^{\frac{2}{3}} = 9$ Note: $\frac{2}{3}$ is an exponent.

09. (04 pts) Solve $\sqrt{2\,x} - 10 = 0$. $x =$ _____

10. (04 pts) Solve $\sqrt{5x+1} = \sqrt{3x-7}$. $x =$ _____

11. (04 pts) Solve $2x^3 = 8x$. $x =$ _____

12. (04 pts) Solve $2x^3 = 8$. $x =$ _____   Be sure to find ALL complex solutions.

13. (04 pts) Use the compounding formula $A = P(1 + \frac{r}{n})^{nt}$ to determine the value an investment account if \$500 is invested for 7 years, compounded monthly at an APR of 4.9%.

14. (04 pts) Use the compounding formula $A = P(1 + \frac{r}{n})^{nt}$ to determine the APR required for an investment to reach a value of \$700 if \$500 is invested for 7 years, compounded quarterly.

15. (04 pts) Consider the inequality $2x - 4 < 8$.

  a) Solve the inequality.   b) Express the answer in *interval notation*.

  c) Graph the solution on the real number line.   <---------------------------- 0 --------------------------->

  d) Is the solution set BOUNDED or UNBOUNDED?

16. (04 pts) Consider the inequality $-6 \leq 2x - 4 < 8$.

   a) Solve the inequality.   b) Express the answer in *interval notation*.

   c) Graph the solution on the real number line.   ←----------------------------- 0 --------------------------→

   d) Is the solution set BOUNDED or UNBOUNDED?

17. (04 pts) Consider the inequality $|2x - 4| < 8$.

   a) Solve the inequality.   b) Express the answer in *interval notation*.

   c) Graph the solution on the real number line.   ←----------------------------- 0 --------------------------→

   d) Is the solution set BOUNDED or UNBOUNDED?