MAC1105 College Algebra Sample Test 3 Name _____

Solve the Following Equations by Hand. Show Your Work. Give EXACT Values.
A numerical answer only (using your graphing calculator) will only give you partial credit.

1) $\frac{3}{4}x - \frac{1}{6} = \frac{1}{2}x + 5$

2) $x^2 + 25 = 0$

3) $x^2 - 24 = 5x$

4) $3x^2 - 2x - 6 = 0$

5) $(x - 2)^2 = 5$

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A numerical answer only (using your graphing calculator) will only give you partial credit.

6) $\sqrt{x+3} - x = 1$

7) $|2x - 5| = 7$

8) $\sqrt[3]{5x-1} = -2$

9) $\frac{3}{x} + \frac{x}{x+2} = \frac{4}{x(x+2)}$

Solve the following equations with your calculator. Round your answers to 2 decimal places.

10) $x^2 + 3x + 1 = x + 6$ _____

11) $|2x - 5| + \sqrt{x+1} = 4$ _____

12) Perform the indicated operations. Simplify your answer.

A) $(5 + 3i) + (4 - i)$

B) $(6 - 2i) - (4 - 5i)$

C) $2i(4 + 5i)$

D) $(2 + 3i)(4 - 5i)$

E) $\dfrac{3}{i}$

F) $\dfrac{5}{4 + i}$

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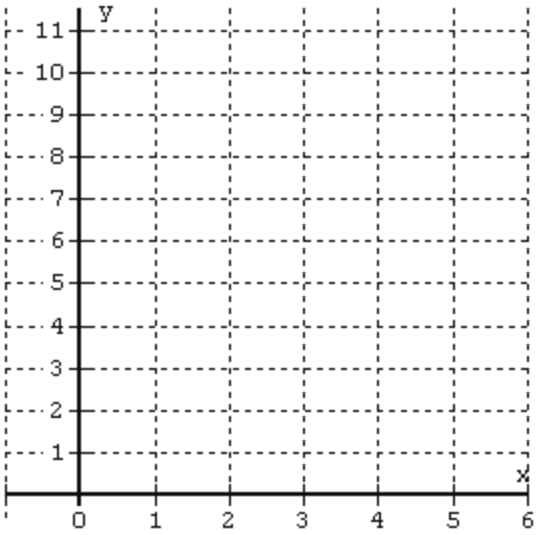
13) Graph $y = x^2 - 8x + 19$

B) Put into Vertex Form: $y = \pm a(x - h)^2 + k$



C) State the Domain:

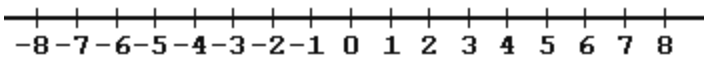
D) State the Range:

E) Give the coordinates of the Vertex:

F) Where $f(x)$ is increasing? State the x-values, in interval notation.

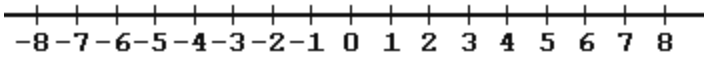
A) Solve the Following Inequalities,
B) Graph the Solution on the Number Line
C) Express the Solution using Interval Notation

14) $|2x - 7| < 13$



Interval Notation } →

15) $|x - 2| \geq 4$



Interval Notation } →

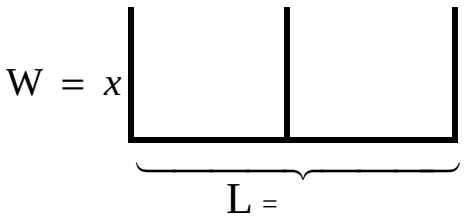
16) Assume that the Total Length of ALL "SIDES" of each figure is **50 ft**.

A) **Label** the following figure.

Use your graphing calculator's Maximum function to find the following:

B) Find the **dimensions** of the rectangle that yields the Maximum Enclosed Area. That is, find the Length & Width.

C) What is the Maximum **Area?**



Maximum Area
Numerical Values
L =
W =
Area =