Polynomial Systems Problems

Solve the following systems algebraically.

1. $f(x) = \begin{Bmatrix} x^2 + 5x + 6 \\ x + 3 \end{Bmatrix}$
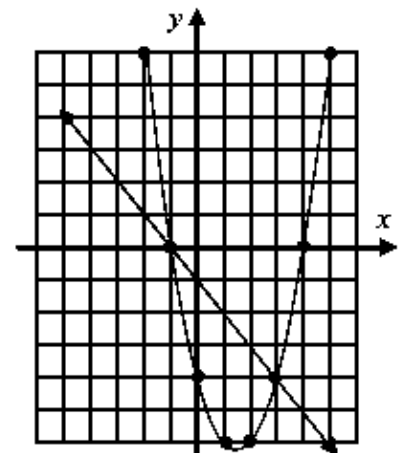
2. $f(x) = \begin{Bmatrix} x^2 - 7x + 10 \\ x - 5 \end{Bmatrix}$

Which is the solutions of the following system.

3. $f(x) = \begin{Bmatrix} x^2 - 9x - 36 \\ 2x - 24 \end{Bmatrix}$

a. (12, 0) and (-2, -14)

b. (12, 0) and (-1, -26)

c. (3, -18) and (4, -16)

d. (12, 0) and (4, -16)

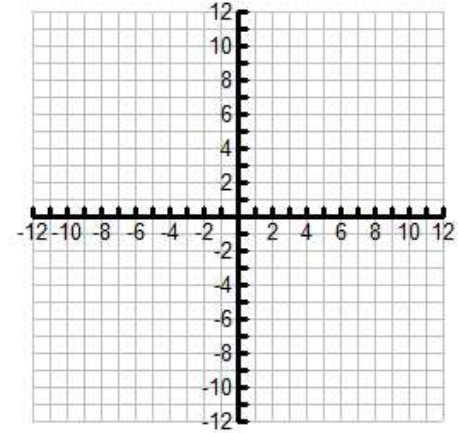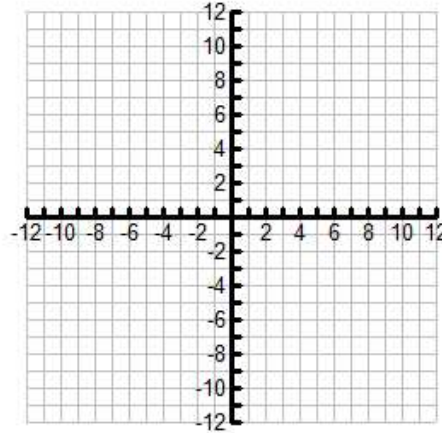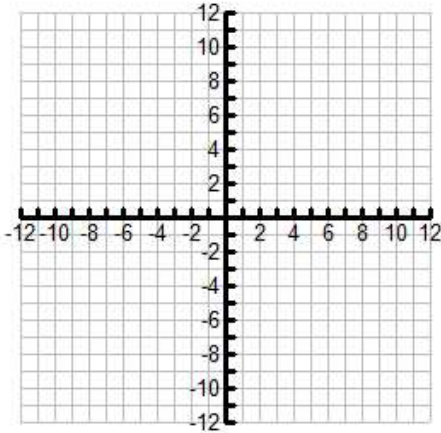What are the solutions to the system of equations graphed below?

a. (0, -4) and (4, 0)

b. (3, -4) and (4, 0)

c. (-1, 0) and (4, 0)

d. (-1, 0) and (3, -4)

Graph the following polynomials and find the approximate maximum(s) and minimum(s).

1. $f(x) = -(x + 5)(x - 3)(x + 7)$ 2. $f(x) = (x - 2)(x - 4)^2$ 3. $f(x) = x^3 + 2x^2 - 8x$

Maximum _____   Maximum _____   Maximum _____
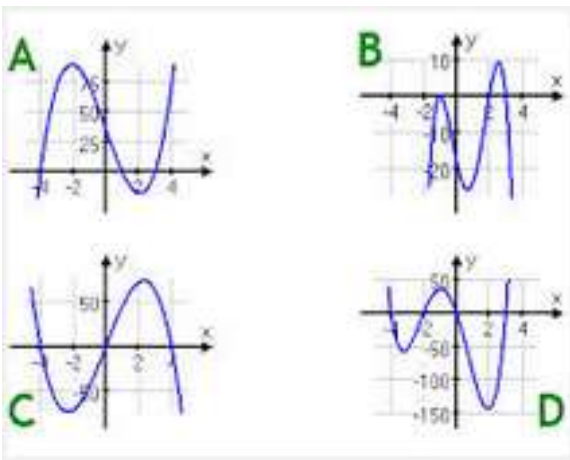
Minimum _____   Minimum _____   Minimum _____

4. Which graph below as an end behavior of

$$x \to -\infty \quad x \to +\infty$$
$$y \to -\infty \quad y \to -\infty$$

A

B

C

D

5. What is the least degree polynomial of

1, 4i