Find the relative maximum, relative minimum, and zeros of each function.
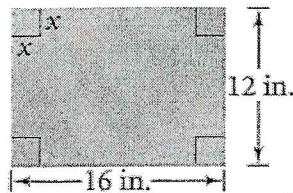
13. $f(x) = x^3 + 4x^2 - 5x$

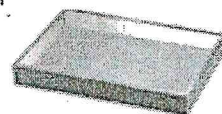**14.** $f(x) = -x^3 + 16x^2 - 76x + 96$

Need a graphing ↓ calc.

15. Metalwork A metalworker wants to make an open box from a sheet of metal, by cutting equal squares from each corner as shown.

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12 in.

16 in.

a. Write an expression for the length, width, and height of the open box.
b. Use your answer from part (a) to write a function for volume. (*Hint:* Use factored form.)
c. Graph the function. Find the maximum volume that can be contained by the box and the size of the square cut that produces this volume.

Plus: Graph these polynomials by hand, using our 3 step process

① $y = -x^2(x^2 + x - 2)$ ② $y = -x^3 + 2x^2 + 8x$

③ $y = x^5 - 2x^4 + x^3$ ④ $y = (x-2)^2(x+3)^2$