1) Amy, the owner of Amy's Pottery, can produce china pitchers at a cost of $5 each. She estimates her price function to be $p = 17 - 5x$, where p is the price at which exactly x pitchers will be sold per week. Find the number of pitchers that she should produce and the price that she should charge in order to maximize profit. Also find the maximum profit. *Hint: see objective 2 from section 4.2, especially example 4.*

Answer:

Number of pitchers:

Price to charge:

Maximum profit:

2) Use synthetic division to divide $f(x)$ by $(x - c)$ and then write $f(x)$ in the form $f(x) = (x-c)\cdot q(x) + r$

$f(x) = x^3 + 5x^2 - 3x - 1; \quad x+1$

Answer:

3) Determine the equations of all asymptotes and sketch the graph of the function on the grid provided.

$$f(x) = \frac{2x^2+4x-6}{x^2-4x+3}$$

(a) Vertical Asymptote(s):

(b) Horizontal Asymptote(s):

(c) Any removable discontinuities?