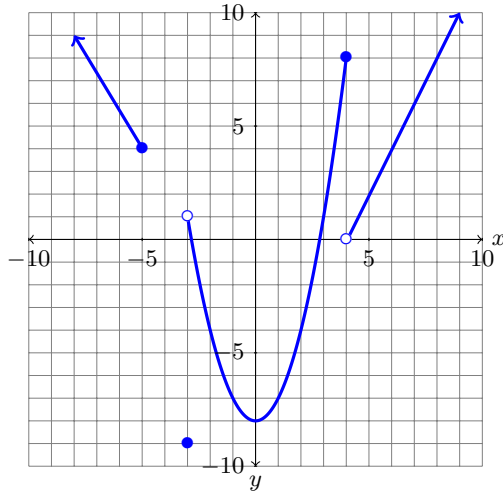




## EXAM 3 REVIEW OVER CHAPTER 5

**Pr 1.** State the domain and range of the function given in the graph below, using interval notation.



**Pr 2.** Determine if the given function is a polynomial function. If the answer is yes, state the degree, leading coefficient, and constant term.

$$f(x) = 2^5 - 17x^7 + 12 - 42x^2.$$

**Pr 3.** Let  $f(x) = -3x^2 + 18x - 15$ . Find the domain, range,  $x$ -intercepts, and  $y$ -intercept.

**Pr 4.** The price-demand function (in dollars) for a particular item is given by  $p(x) = -0.06x + 56$ , where  $x$  is the number of items. The company who produces these items has a production cost of \$5 per item and fixed costs of \$150. Determine the maximum profit for the company from the sales of this item.

**Pr 5.** State the domain of the following rational function. Then classify each domain restriction as the location of a hole or vertical asymptote on the graph of the function.  $f(x) = \frac{(3x - 2)(2x - 5)(x - 5)}{(x - 5)(2x + 5)(x + 1)}$

**Pr 6.** Compute and simplify the difference quotient of  $g(x) = \frac{2x}{3x - 1}$ .

**Pr 7.** State the domain of  $f(x) = \frac{(3x-2)\sqrt{1-2x}}{(x+5)^{4/7}}$  using interval notation.

**Pr 8.** Rationalize  $f(x) = \frac{\sqrt{x+6} - \sqrt{x}}{6}$

**Pr 9.** State the domain of  $f(x) = \begin{cases} \frac{1}{(x+5)(x-3)} & x < -3 \\ \ln(12 - 2x) & x \geq 3 \end{cases}$  using interval notation.

**Pr 10.** State the domain of  $h(x) = 2^{\sqrt{3-4x}}$  using interval notation

**Pr 11.** Algebraically solve:  $27 \cdot 9^{2x-1} = 81$ .

**Pr 12.** You would like to save \$2000 by making an initial deposit in a savings account earning annual interest at a rate of 0.35% and leave it there for 4 years. How much should be place in the account initially, if no other deposits are made during that time and the account is compounded continuously?