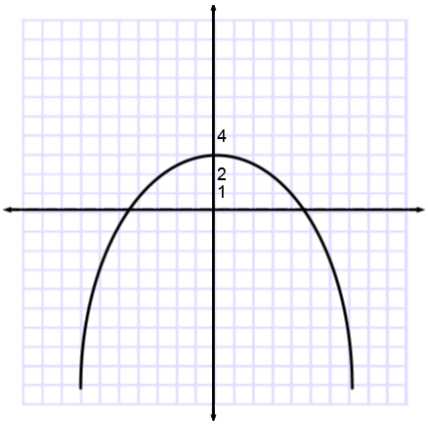
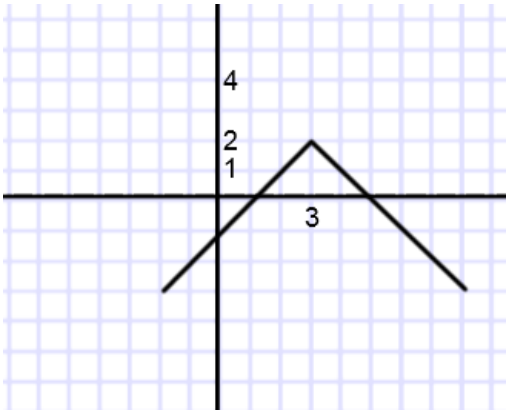
College Algebra Last Review (New Spicy Textbook, Chapter 3 – 4)

Write an equation for the following graphs:

#1.



#2.



Find the maximum or minimum value of the function.

#3) $f(x) = 2x^2 - 8x - 3$

#4) $f(x) = -2x^2 - 12x + 3$

#5) A textile manufacturer has a daily production cost of $C(x) = 0.045x2 - 110x + 10{,}000$ where C is the total cost in dollars and x is the number of units produced. How many units should be produced each day to minimize cost? What is the minimum cost?

#6) Use synthetic division to find the value of f(-3) when $f(x) = x^3 - 6x^2 + 4x - 2$.

#7) List the possible rational zeros of the function and state whether each zero crosses or touches and turns around: $f(x) = -4x^3 + 3x^2 - 4x + 5$

State the domain of the following functions:

#8) $f(x) = \dfrac{x^3 - 2x^2 + 3x}{x^2 - 2x - 3}$

#9) $\dfrac{x^2 - 2x + 4}{3x - 2}$

Find the vertical asymptotes of the function:

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

#11) $f(x) = \frac{x^2 - 6}{x^2 - 5x + 6}$

Find the horizontal asymptotes of the function:

#12) $f(x) = \frac{x^4 - 2}{x^2 + 16}$

#13) $f(x) = \frac{3x}{3x^2 - 6}$

#14) $f(x) = \frac{2x^2}{3x^2 - 6x}$

Find the slant asymptotes of the function, if it has one:

#15) $f(x) = \frac{x^2 + 5x}{x + 3}$

#16) $f(x) = \frac{x^2 + 3x - 1}{x - 2}$

#17) $f(x) = \frac{x^4 - 2}{x^2 + 16}$

Solve for the final amount of money:

#18: Investment of $10,000 for 5 years at interest rate of 5.5% & money is compounded semiannually.

#19: Principal of $5000 for 10 years at interest rate of 6.5% & money is compounded daily.

#20: Invest $6000 for 4 years at interest rate of 8.25% & money is compounded continuously.

Solve:

#21: $\log_6(1/6) = ?$

#22. $\log_{81}(9) = ?$

#23. 7^($\log_7 23$) = ?

#24: $\log_2 (\log_3 81) = ?$

#24. ln(e^ (I love math)) = ?

Expand:

#25. $\log \frac{1000x^3}{\text{amen}}$

#26. $\ln \frac{x^3 \sqrt{(x^2 + 1)}}{x^2y^3z^4}$

#27. $\frac{\log 100x^3(x-5)^{1/5}}{3(x+7)^2}$

Condense:

#28. $\log x + \log(x^2 - 4) - \log 15 - \log(x + 2)$

#29. $8\log x - (1/3)\log y$

#30. $(1/2)(\log x + \log y - \log z - \log w)$