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Math_Questions_0050**

1) Sketch the graph of each of the following quadratic functions, indicating the coordinates of the vertex, the y-intercept, and the s-intercept(s)

a) $f(x) = x^2 + x - 6$

b) $f(x) = -2x^2 - 12x - 16$

2) Given the demand function below, determine the revenue function and determine the price "p" that maximizes the total revenue. Now find the maximum revenue for: $q = -5p + 1200$

3) Given the following the revenue and cost functions: $R(x) = -x^2 + 10x$ and $C(x) = 2x + 12$
find:

a) The maximum revenue

b) The maximum profit

4) Graph the following

a) Graph $f(x) = 2^x$

b) Graph $g(x) = \log_3 x$

5) An initial deposit of \$5000 earns 6% interest compounded monthly for 12 years. How much money is there at the end of 12 years? (Remember: $A = P(1 + r/k)^{kt}$)

6) How much more money is there at the end of 12 years if \$5000 is invested at 6% compounded continuously than if the money were to just compound monthly for 12 years? (Remember: $A = Pe^{rt}$)

7) Sales of a new model of word processor are approximated by $S(t) = 5000 - 4000e^{-t}$ where t represents the number of years that the word processor has been on the market, and S(t) represents sales in thousands.

a) Find the sales in year "0".

b) When will the sales reach \$4,500,000?

8. Write the equation:

a) $\log_4(16)=2$ in exponential form.

b) $6^2 = 36$ in logarithmic form.

9. Solve for x in the following. You may use the log rules or show your work for the following.
All of these just involve rewriting from log for to exponential or vice versa.

a) $\log_3 9 = x$ b) $\log_7 x = 3$ c) $\log_x 81 = 4$

d) $\log_5 5 = x$ e) $\log_{12} 12^4 = x$ f) $\log_6 1 = x$

g) $\log(100) = x$ h) $\log(-4.35) = x$ i) $\ln x = 4.18$

10) Solve the following:

a) $6^x = 32$ b) $2^4 = 2^{2(2x+3)}$

11. When Power and Money, Inc., charges \$600 for a seminar on management techniques, it attracts 1000 people. For each \$20 decrease in the fee, an additional 100 people will attend the seminar. The managers are wondering how much to charge for the seminar to maximize their revenue.