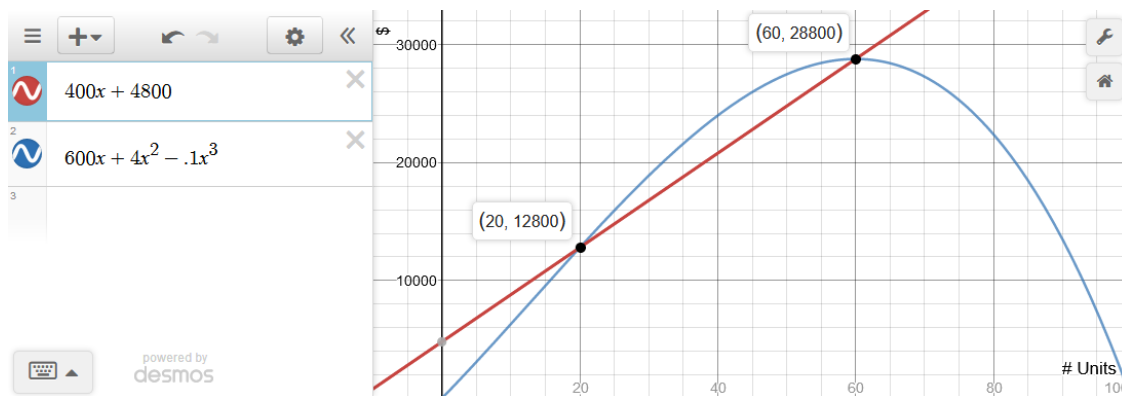


College Algebra, Section 7.6, #30  
Systems of Nonlinear Equations

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**Break-Even** The daily total cost function for a product is  $C(x) = 400x + 4800$  dollars and the daily revenue is  $R(x) = 600x + 4x^2 - 0.1x^3$ , where  $x$  is the number of units. Use graphical methods to find the numbers of units that give break-even.<sup>1</sup>

The cost and revenue break-even (are equal) where the two curves meet or cross. Let's look at the graph...



There are two points where the cost curve and the revenue curve meet or cross: (20, 12,800) and (60, 28,800).

These are in the form (*#units*, \$) and represent the break-even points.

Since we are asked only for the numbers of units that will give break-even, we say that the company will break-even when either 20 or 60 units are produced.

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<sup>1</sup>Harshbarger/Yocco, *College Algebra In Context*, 5e, p. 578, #30.