Standard Functions Examples

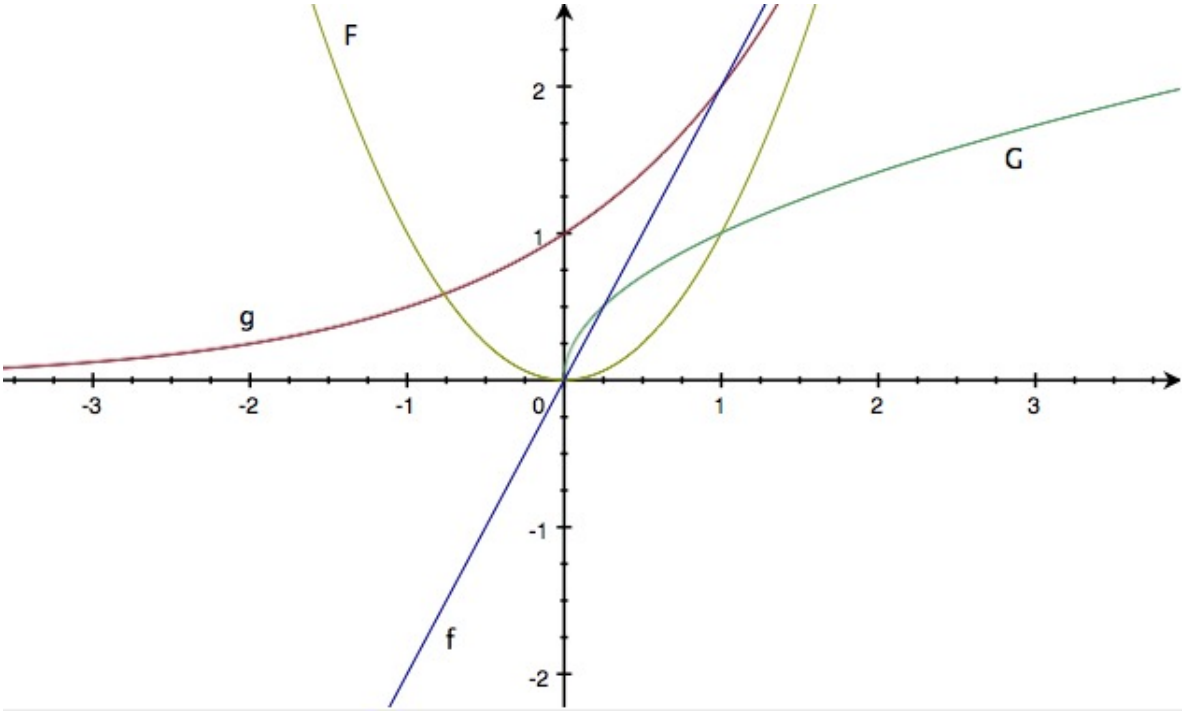
1. Match the equations given to the graphs

   (a) $y = x^2$

   (b) $y = \sqrt{x}$

   (c) $y = 2x$

   (d) $y = 2^x$

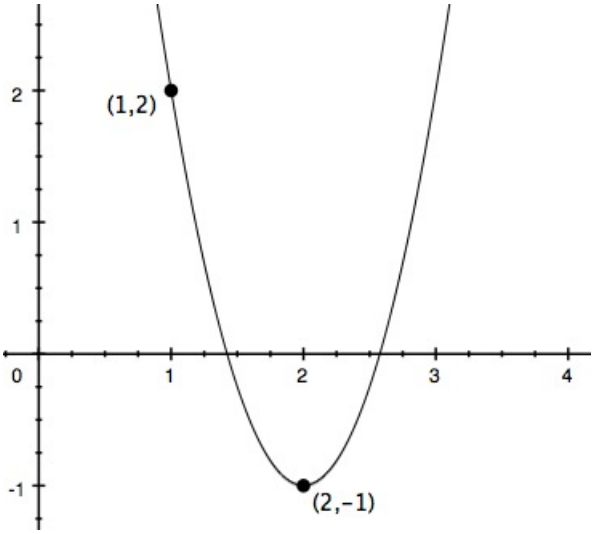


2. Find the domain of the function: $f(x) = \dfrac{1}{1 - 2\cos x}$

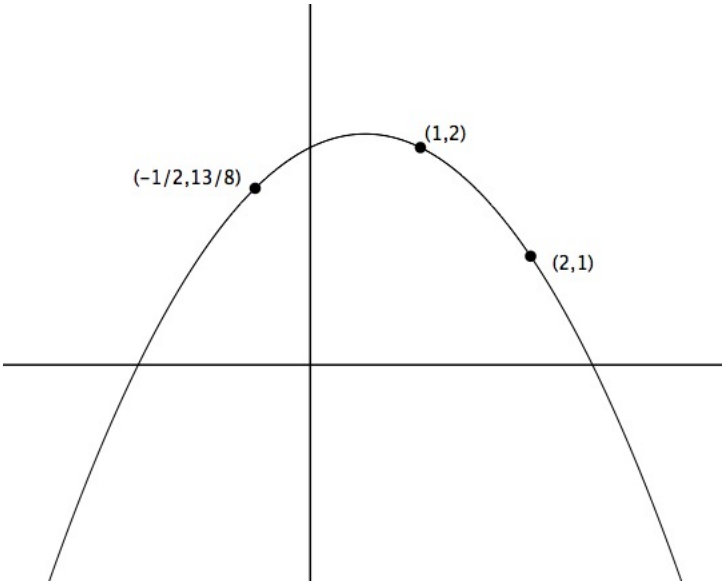
3. Find the domain of $f(x) = \ln(\tan x - 1)$

4. What do all members of the family of linear functions $f(x) = m(x + 2) - 3$ have in common? Sketch several members of the family.

5. Find the equation of the quadratic function whose graph is given



6. Find the equation of the quadratic functions whose graph is given



7. Find an expression for a cubic function f if $f(0) = 2$ and $f(-1) = f(1) = f(3) = 0$.

8. Find an expression for an exponential function f where $f(0) = 2$ and $f(3) = 54$

9. George Weasley is pricing a new product for Weasleys' Wizard Wheezes. He has determined that it costs 6 sickles to produce 1 item, and 3 galleons to produce 10 (there are 17 sickles to a galleon).

   (a) Assuming a linear cost function, express the cost as a function of items produced.

   (b) What is the slope of the graph, and what does it represent?

   (c) What is the y-intercept and what does it represent?

10. Gimli has noticed that the number of orcs he kills is linearly related to the number that Legolas kills. When Legolas has killed 6 orcs, Gimli has killed 5, and when Legolas has killed 12, Gimli has killed 9. Find a function represented the relationship between Legolas' and Gimli's orc kill counts.