

Function Translations

- Find the roots of $y = x^2 + 3x - 18$.
 - Using your answer from part (a), can you find the roots of $y = (x - 2)^2 + 3(x - 2) - 18$?
 - Using your answer from part (a), can you find the roots of $y = (\frac{x}{3})^2 + 3(\frac{x}{3}) - 18$?
 - Using your answer from part (a), can you find the roots of $y = (x^2 + 3x - 18) + 7$?
- Pick four of the graphs on the next page, and give their equations in terms of the given graph $y = f(x)$.
- Fill in the blank: Translating the graph of $y = 2x + 4$ to the right by 2 units is the same as translating the graph of $y = 2x + 4$ up by _____ units. (It may help to draw a careful graph.)
 - Translating the graph of $y = 2x + 2$ to the right by k units is the same as translating the graph of $y = 2x + 2$ up by _____ units.
 - Translating the graph of $y = mx + b$ to the right by k units is the same as translating the graph of $y = mx + b$ up by _____ units.
 - Justify your answer from part 3c algebraically.
 - What property of a line is used to convert horizontal translations to vertical ones?

3. Let $y = f(x)$ be given by the graph in Figure 2.32.

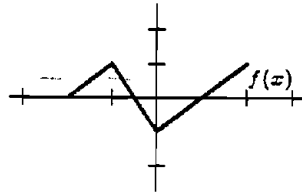


Figure 2.32

