



Problem 1 – Acceleration Due to Gravity

1. What restrictions should be placed on the function $f(x) = \sqrt{\frac{2x}{9.81}}$ given its real context?
2. What time will elapse for the fall of an object being dropped from a height of 200 m above the ground?
3. Is there a maximum value for this function? Explain your reasoning.
4. On which of the given bodies will the 20 meter fall require the **most** time?
5. On which of the given bodies will the 20 meter fall require the **least** time?
6. How much time will the fall of the object from a 20 meter height require on Earth?

Problem 2 – Solution Dilution

7. Given $f(x) = \frac{5 \cdot 10 + x \cdot 2}{5 + x}$, what is the highest possible concentration for this situation?
8. What is the lowest possible concentration approached in this situation? *Hint: Adjust the window to better view the graph for large values of x. Set **XMax** for 500.*
9. Does any part of the graph not make sense in the real context of this problem? If so, explain.