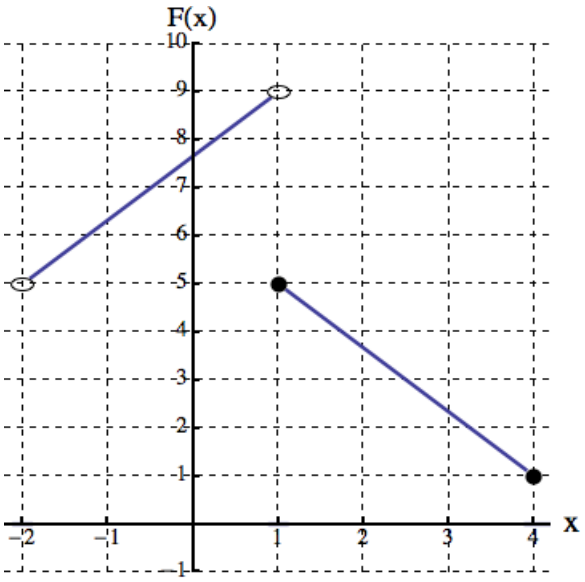
7. [8 points] The graph of the function $F(x)$ is given below:



a. [4 points] Find the domain and range of $F(x)$. Write your answer in interval notation or with inequalities.

Solution: Domain: $(-2, 4]$ or $-2 < x \leq 4$ Range: $[1, 9)$ or $1 \leq F(x) < 9$.

b. [4 points] Use a piecewise-defined function to write a formula for $F(x)$

Solution:

$$F(x) = \begin{cases} \frac{4}{3}x + \frac{23}{3} \quad (\text{or } 1.33x + 7.66) & \text{if } -2 < x < 1 \\ -\frac{4}{3}x + \frac{19}{3} \quad (\text{ or } -1.33x + 6.33) & \text{if } 1 \leq x \leq 4. \end{cases}$$