8. [6 points]

a. [4 points] The table shows some values of the function $Q(x)$.

x	0	2	4	6	8
$Q(x)$	0.4	1	1.2	0.9	0.4

For each question below, circle your answer based on the data in the table:

i) [2 pts] Could the function $Q(x)$ be increasing, decreasing or neither on the entire interval from $x = 0$ to $x = 8$? Circle "Neither" if neither is possible.

Solution: Increasing Decreasing **NEITHER**

ii) [2 pts] Could the function $Q(x)$ be concave up, concave down or neither on the entire interval from $x = 0$ to $x = 8$? Circle "Neither" if neither is possible.

Solution: Concave up **CONCAVE DOWN** Neither

b. [2 points] For what value of C is the line $y = Cx + 11$ perpendicular to the line $2y + 5x + 7 = 0$? Show all your work.

Solution: The slope of the line $2y + 5x + 7 = 0$ (or $y = -\frac{5}{2}x - \frac{7}{2}$) is $m = -\frac{5}{2}$. Since the line $y = Cx + 11$ is perpendicular to the line $2y + 5x + 7 = 0$ we have $C = -\frac{1}{m} = \frac{2}{5}$.