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$$q(0) = 0.20625 - 0.1862 - 0.5 + 0.0624 = -0.41871$$

$$q(\pi/4) = 0.20625 - 0.1317 - 0.8075 - 0 + 0.0875 - 0.0433 + 0.1825 = -0.50625$$

$$q(\pi/2) = 0.20625 - 0 - 1.142 + 0.5 + 0 + 0 - 0.2581 = -0.6938$$

$$q(3\pi/4) = 0.20625 + 0.1317 - 0.8075 + 0 - 0.0875 + 0.0433 + 0.1825 = -0.3313$$

$$q(\pi) = 0.20625 + 0.1862 - 0 - 0.5 + 0 - 0.0625 + 0 = -0.1688$$

$$q(5\pi/4) = 0.20625 + 0.1317 + 0.8075 - 0 + 0.0875 + 0.0433 - 0.1825 = 1.0937$$

$$q(3\pi/2) = 0.20625 - 0 + 1.142 + 0.5 + 0 + 0 + 0.2581 = 2.10635$$

$$q(7\pi/4) = 0.20625 - 0.1317 + 0.8075 - 0 - 0.0875 - 0.0433 - 0.1825 = 0.56875$$

From which

$$\sum \left(f\left(\frac{2\pi k}{8}\right) - q\left(\frac{2\pi k}{8}\right) \right)^2 = 0.1753$$

$$+ 0.0039 + 0.0088 + 0.0285 + 0.0047 + 0.00004 + 0.0088 + 0.0285 = 0.2591 \text{ to 3 sf. } (0.259)$$

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X