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The diagram shows part of the graph of $y = a\cos(bx) + c$.

(a) Find the values of the positive integers a, b and c. [3]

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(b) For these values of a, b and c, use the given diagram to determine the number of solutions in the interval $0 \leqslant x \leqslant 2\pi$ for each of the following equations.

(i) $a\cos(bx) + c = \dfrac{6}{\pi}x$ [1]

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(ii) $a\cos(bx) + c = 6 - \dfrac{6}{\pi}x$ [1]

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