8 The first term of a geometric progression is 10.
This geometric progression has a positive common ratio r.

The first term of an arithmetic progression is also 10.
This arithmetic progression has a negative common difference d.

The second term of the geometric progression is the same as the fourth term of the arithmetic progression.
The third term of the geometric progression is the same as the sixth term of the arithmetic progression.

(a) Find the values of r and d. [6]

(b) Determine whether the geometric progression has a sum to infinity. [1]

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9 Solve the equation $\log_2(x+1) - 4\log_{(x+1)}2 = 3$. [5]

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