Geometrical applications of differentiation

If f'(x) = 0 and f''(x) = 0

QUESTION 1 -

- a If f'(a) = 0 and f''(a) = 0 then the stationary point at x = a could be a ______
- **b** To determine the nature of a stationary point if f'(a) = 0 and f''(a) = 0 it is necessary to _____

QUESTION **2** Find the stationary points and determine their nature:

a $y = 3x^3 - 7$

c	$y = \frac{x^4}{4}$	$-\frac{4x^3}{3}$	+ 7	2 <i>x</i> ²	_	1
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y = *x* + 2

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1 a maximum, minimum, horizontal point of inflexion b test the sign of either the first or second derivative either side of the point
2 a horizontal point of inflexion at (0, -7) b minimum at (0, 2) c minimum at (0, -1), horizontal point of inflexion at $(2, \frac{1}{2})$