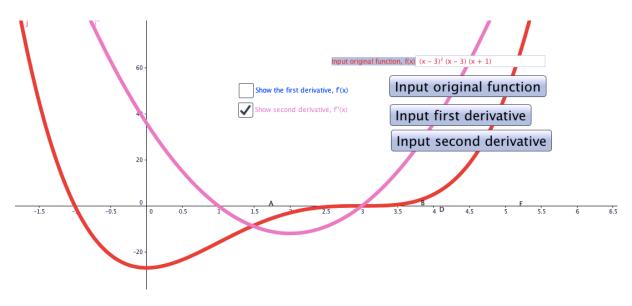1. Given the below graph of **f'(x).**

What do Point A, Point B, Point C, Point D and Point E represent on the original function, f(x)? Explain.

Input first derivative, f'(x) $x^3 - 10x^2 + 31x - 30$

☐ Show the original function, f(x)

☐ Show the second differential, f''(x)

Input original function

Input first derivative

Input second derivative

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2. Given **f(x),** and **f''(x)** as shown on the graph below.

Input original function, f(x) $(x - 3)^2 (x - 3) (x + 1)$

☐ Show the first derivative, f'(x)

☑ Show second derivative, f''(x)

Input original function

Input first derivative

Input second derivative

For what values of x is the original curve, f(x) concave up?
For what values of x is the original curve, f(x) concave down?
For what values of x is there a non-stationary point of inflection?

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3. Given the graph of **f(x)** (the red curve), and it's derivative **f'(x)** (the blue curve).

Input original function, f(x) $x^3(1-x)+7x$

☑ Show the first derivative, f'(x)

☐ Show second derivative, f''(x)

Input original function

Input first derivative

Input second derivative

State the values of x for which f(x) is increasing?

State of the vales of x for which f(x) is decreasing?

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4. With reference to the graphs of **f(x), f'(x)** and **f''(x)**

Mark the maximum, minimums and points of inflection for f(x) on the graph and explain f'(x), and f''(x) have been used to justify this.

Input original function, f(x) $1.5\sin(2x + 0.2)$

Show the first derivative, f'(x)

Show second derivative, f''(x)

Input original function

Input first derivative

Input second derivative

Packman 11/5/2018

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