estion: What are the intervals of concavity and the inflection points for the function

$f(x) = 1 - 9x + 6x^2 - x^3$

- a) concave up $(-\infty, -2) \cup (2, \infty)$, concave down $(-2, 2)$, inflection point at $x = 2$
- b) concave up $(-\infty, 1.5)$, concave down $(1.5, \infty)$, inflection point at $x = 2$
- c) concave up $(-\infty, 2)$, concave down $(2, \infty)$, inflection point at $x = 2$
- d) concave up $(-\infty, 2.5)$, concave down $(2.5, \infty)$, inflection point at $x = 2$

Multiple Choice

estion: What are the intervals of concavity and the inflection points for the function

$f(x) = xe^x$

- a) concave up everywhere, no inflection point
- b) concave up $(-e, \infty)$, concave down $(-\infty, e)$, inflection point at $x = e$
- c) concave up $(-\infty, -2)$, concave down $(-2, \infty)$, inflection point at $x = -2$
- d) concave up $(-2, \infty)$, concave down $(-\infty, -2)$, inflection point at $x = -2$

Multiple Choice

stion: What are the intervals of concavity and the inflection points for the function

$f(x) = 3x^4 - 16x^3 + 3$

- a) concave up everywhere, no inflection point
- b) concave up $(-\infty, 0) \cup (8/3, \infty)$, concave down $(0, 8/3)$, inflection point at $x = 0, 8/3$
- c) concave up $(-\infty, 0) \cup (3, \infty)$, concave down $(0, 3)$, inflection point at $x = 0, 3$
- d) concave up $(-2, \infty)$, concave down $(-\infty, -2)$, inflection point at $x = -2$

Question: What are the intervals of concavity and the inflection points for the function:

$f(x) = x - \frac{1}{x}$

- a) concave down (-infinity, 0); concave up (0, infinity); no inflection point
- b) concave up (-infinity, 0); concave down (0, infinity); no inflection point
- c) concave up (-infinity, 0); concave down (0, infinity); inflection point at x = 0.
- d) concave down (-infinity, 0); concave up (0, infinity); inflection point at x = 0.

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Multiple Choice

estion: Which of the following is false? In the following choices, assume b < 1.

- a) if $f(x) = x^3 - 3bx^2 + a$, then $f(x)$ is concave up on (b, ∞)
- b) if $f(x) = 6x^7 - 7bx^6 + 1$, then $f(x)$ is concave up on $(5/6, \infty)$
- c) if $f(x) = x^4 - 4x^3 + 1$, then $f(x)$ is concave up on $(0, \infty)$
- d) if $f(x) = x^4 + 6bx^2 + a$, then $f(x)$ is concave up on $(-\infty, b)$