Calculus
F 23 March 2012

RESET THE SESSION

SET THE PARTICIPANT LIST

PLUG IN THE RECEIVER

New topics (see diary)

Topics covered are in bounds

Boxed answers agree with TurningPoint answers

Points agree with TurningPoint points

Points total to 100

Cover the look ahead

QUIZ
FOLLOWS

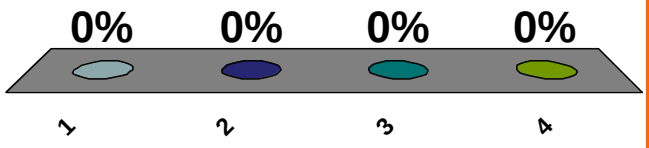
Newton's method formula to solve $x^3 + x^2 - 4 = 0$.

(a) $x_{n+1} = x_n - \dfrac{3x_n^2 + 2x_n}{x_n^3 + x_n^2 - 4}$

(b) $x_{n+1} = x_n + \dfrac{3x_n^2 + 2x_n}{x_n^3 + x_n^2 - 4}$

(c) $x_{n+1} = x_n - \dfrac{x_n^3 + x_n^2 - 4}{3x_n^2 + 2x_n}$

(d) none of the above



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Newton's method formula to solve $x^5 + x^3 = 4$.

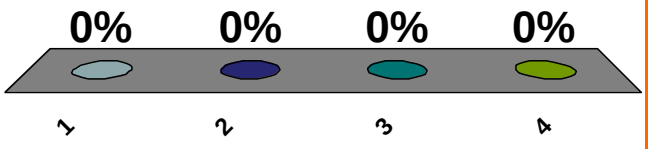
(a) $x_{n+1} = x_n + \dfrac{x_n^5 + x_n^3}{5x_n^4 + 3x_n^2}$

(b) $x_{n+1} = x_n + \dfrac{5x_n^4 + 3x_n^2}{x_n^5 + x_n^3}$

(c) $x_{n+1} = x_n - \dfrac{x_n^5 + x_n^3}{5x_n^4 + 3x_n^2}$

(d) none of the above

Correct: $x_{n+1} = x_n - \dfrac{x_n^5 + x_n^3 - 4}{5x_n^4 + 3x_n^2}$



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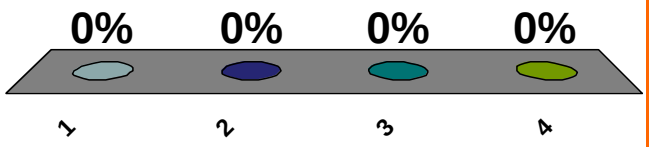
Newton's method formula to solve $(\cos x) + x^3 - 4 = 0$.

(a) $x_{n+1} = x_n - \dfrac{(\sin x_n) + 3x_n^2}{(\cos x_n) + x_n^3 - 4}$

(b) $x_{n+1} = x_n - \dfrac{(\cos x_n) + x_n^3 - 4}{(\sin x_n) + 3x_n^2}$

(c) $x_{n+1} = x_n - \dfrac{(\cos x_n) + x_n^3 - 4}{-(\sin x_n) + 3x_n^2}$

(d) none of the above



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Newton's method for solving $e^x + x = 4$:

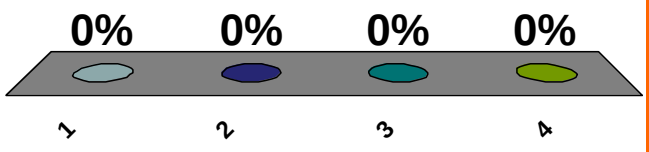
$$x_{n+1} = \text{??}$$

(a) $x_n - \dfrac{e^{x_n} + x_n}{e^{x_n} + 1}$

(b) $x_n - \dfrac{e^{x_n} + x_n - 4}{e^{x_n} + 1}$

(c) $x_n - \dfrac{e^{x_n} + 4}{e^{x_n} + x_n}$

(d) none of the above



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Newton's method for solving $f(x) = 1$:

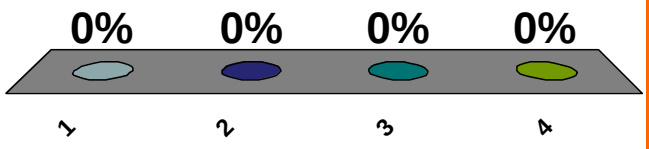
$x_{n+1} = ??$

(a) $x_n - \dfrac{f(x_n)}{f'(x_n)}$

(b) $x_n - \dfrac{[f(x_n)] - 1}{f'(x_n)}$

(c) $x_n - \dfrac{f'(x_n)}{f(x_n)}$

(d) none of the above



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LOOK BACK

derivs w.r.t. t of exprs of r, x, w, etc.

CURRENT

Sand is being poured into a conical pile that is always twice as wide as it is high. Each minute, 50 cubic feet gets added to the pile. How fast is the height of the pile increasing, when the pile is 10 feet high?

CURRENT

An FBI agent with a powerful spyglass is located in a boat anchored 400 meters offshore. A gangster under surveillance is walking along the shore. Assuming the shoreline is straight and that the gangster is walking at the rate of 2 km/hr, how fast must the FBI agent rotate the spyglass to track the gangster when the gangster is 1 km from the point on the shore nearest to the boat?

LOOK AHEAD

$$\frac{d}{dx}\left[\int_1^x (\cos t)\, dt\right]$$

$$\triangle \left[\sum_{j=1}^{n} (\cos j)\right]$$

LOOK BACK (implicit diff. & IFT)

derivs of arcsin, arccos
derivs of arctan, arccot

$f(x) = x^7 + x$
$g = f^{-1}$
Find $g(2)$ and $g'(2)$.

LOOK BACK

$y = (2x^2 - x + 1)(\cos(3x))$
$\triangle y$, dy,
eq'n of tangent line at $(0, 1)$,
linearization at $x = 0$

$f(x) = 2x \quad \Rightarrow \quad f(s+t) = (f(s)) + (f(t))$??

$f(x) = 3x \quad \Rightarrow \quad f(s+t) = (f(s)) + (f(t))$??

$f(x) = 4x+1 \quad \Rightarrow \quad f(s+t) = (f(s))+(f(t))$??

limit of quotient $=$ quotient of limits ?

$$e^{\ln x} = x \quad ?$$

$$\ln e^{x} = x \quad ?$$

$$x^2/x = x \quad ?$$

$$x/x^2 = 1/x \quad ?$$

position $= 2t^3 + 5t^2$

velocity at $t = 3$?

SAVE THE SESSION DATA

RETURN TO PRESENTATION