Calculus
F 30 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

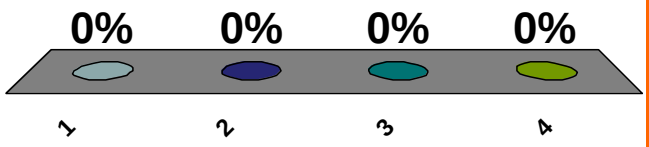
line's slope $= 8$
goes through $(2, 7)$
equation?

(a) $x - 7 = 8(y - 2)$

(b) $y - 7 = 8(x - 2)$

(c) $y - 8 = 7(x - 2)$

(d) none of the above



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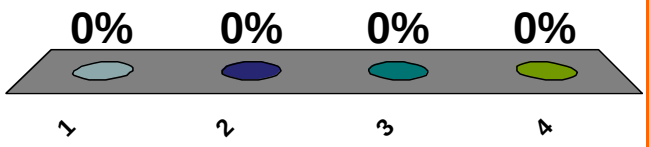
line's slope $= 8$
goes through $(2, 7)$
equation?

(a) $x = 7 + 8(y - 2)$

(b) $y = 7 + 8(x - 2)$

(c) $y = 8 + 7(x - 2)$

(d) none of the above



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tangent line to $y = f(x)$ at $(2, 7)$

$$y - 7 = 8(x - 2)$$

"linearization" of $f(x)$ at $x = 2$?

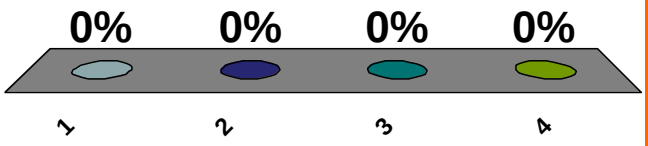
(a) 8

(b) 7

(c) $8(x - 2)$

(d) none of the above

Correct answer: $7 + 8(x - 2)$



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$f(7) = 4, \quad f'(7) = -8$

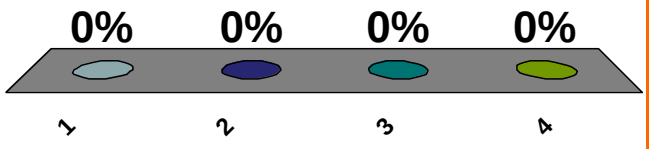
Linear approx. to $f(x)$ at $x = 7$?

(a) $4 - 8(x - 7)$

(b) $7x^2 - 8x + 4$

(c) $-8 + 4(x - 7)$

(d) none of the above



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0 of 5

Topic 0540

10 pts

$f(5) = -2, \quad f'(5) = 39$

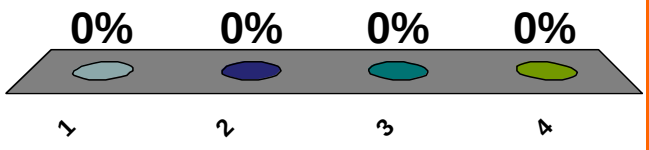
Linear approx. to $f(x)$ at $x = 5$?

(a) $39 - 2(x - 5)$

(b) $-2 + 39(x - 5)$

(c) $5x^2 + 39x - 2$

(d) none of the above



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$g(9) = -3, \quad g'(9) = -8$

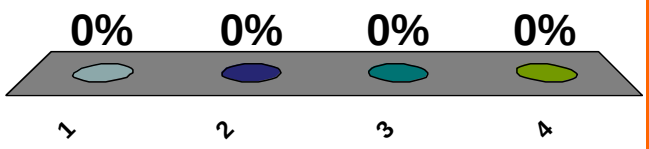
Linear approx. to $g(x)$ at $x = 9$?

(a) $-8 - 3(x - 9)$

(b) $-3 - 8(x - 9)$

(c) $9x^2 - 8x - 3$

(d) none of the above



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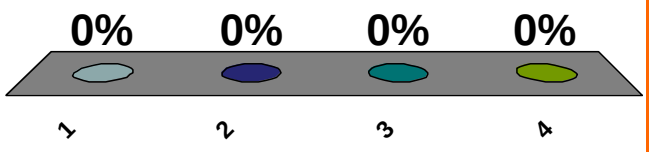
Newton's method formula to solve $x^3 + x^2 - 4 = 0$.

(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 $x^5 + x^3 = 4$.

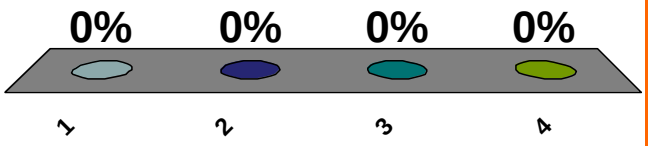
(a) $x_{n+1} = x_n + \dfrac{x_n^5 + x_n^3}{5x_n^4 + 3x_n^2}$

(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 for solving $e^x + x = 4$:

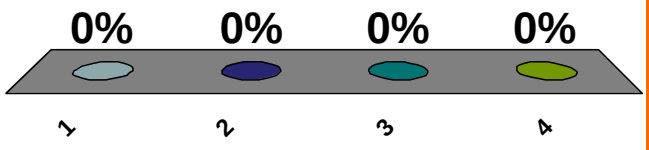
$$x_{n+1} = \text{??}$$

(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 $f(x) = 5$:

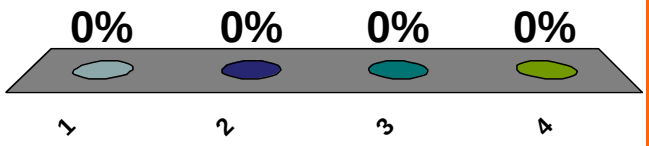
$$x_{n+1} = \text{??}$$

(a) $x_n - \dfrac{[f(x_n)] - 5}{f'(x_n)}$

(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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Topic 0530

10 pts

CURRENT

$y = (2x^2 - x + 1)(\cos(3x))$

$\triangle y$, dy,

eq'n of tangent line at $(0, 1)$,

linearization at $x = 0$

LOOK BACK

monomial in x, y, z

polynomial in x, y, z

quadratic polynomial in x, y, z

homogeneous quadratic

inhomogeneous quadratic

linear polynomial in x, y, z

homogeneous linear

inhomogeneous linear

affine

linearity of (homog.) linear polys

$f(x) = 2x$ linear? $g(x) = 2x + 3$?

LOOK AHEAD

nth partition of an interval

right endpoints

left endpoints

midpoints

$$\triangle \left[\sum_{j=1}^{n} (\cos(j^3 + j^2)) \right]$$

$$\frac{d}{dx} \left[\int_1^x (\cos(t^3 + t^2))\, dt \right]$$

$$\frac{d}{dx} \left[\int_{x^4}^{e^x} (\cos(t^3 + t^2))\, dt \right]$$

LOOK BACK (OPTIMIZATION)

We want to construct a box whose base length is 3 times the base width. The material used to build the top and bottom cost \$10/ft^2 and the material used to build the sides cost \$6/ft^2. If the box must have a volume of 50 ft^3 determine the dimensions that will minimize the cost to build the box.

$$e^{\ln x} = x \quad ?$$
$$\ln e^{x} = x \quad ?$$
$$x^2/x = x \quad ?$$
$$x/x^2 = 1/x \quad ?$$

SAVE THE SESSION DATA

RETURN TO PRESENTATION