

2022 Calculus BC Taylor Polynomial Approximation 8 4

Lesson 331 | Calculus BC | Taylor polynomials

<https://www.youtube.com/watch?v=ajICmpOoOS0>

Original practice aligned to the saved video title.

Name: _____ Date: _____ Show your reasoning.

01 Find the degree-7 Maclaurin polynomial for $e^{(13x)}$, and use it to approximate $e^{(13/100)}$.

02 Find the degree-4 Maclaurin polynomial for $e^{(7x)}$, and use it to approximate $e^{(7/100)}$.

03 Find the degree-2 Maclaurin polynomial for $e^{(4x)}$, and use it to approximate $e^{(4/100)}$.

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04

Find the degree-3 Maclaurin polynomial for $e^{(6x)}$, and use it to approximate $e^{(6/100)}$.

05

Find the degree-5 Maclaurin polynomial for $e^{(11x)}$, and use it to approximate $e^{(11/100)}$.

06

Find the degree-6 Maclaurin polynomial for $e^{(4x)}$, and use it to approximate $e^{(4/100)}$.

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01 Find the degree-7 Maclaurin polynomial for $e^{(13x)}$, and use it to approximate $e^{(13/100)}$.

$$P_7(x) = \sum_{k=0}^7 (13x)^k / k!. \text{ At } x=1/100, \text{ sum} = 1.1388283833.$$

02 Find the degree-4 Maclaurin polynomial for $e^{(7x)}$, and use it to approximate $e^{(7/100)}$.

$$P_4(x) = \sum_{k=0}^4 (7x)^k / k!. \text{ At } x=1/100, \text{ sum} = 1.0725081671.$$

03 Find the degree-2 Maclaurin polynomial for $e^{(4x)}$, and use it to approximate $e^{(4/100)}$.

$$P_2(x) = \sum_{k=0}^2 (4x)^k / k!. \text{ At } x=1/100, \text{ sum} = 1.0408000000.$$

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04

Find the degree-3 Maclaurin polynomial for $e^{(6x)}$, and use it to approximate $e^{(6/100)}$.

$P_3(x) = \sum_{k=0..3} (6x)^k / k!$. At $x=1/100$, sum = 1.0618360000.

05

Find the degree-5 Maclaurin polynomial for $e^{(11x)}$, and use it to approximate $e^{(11/100)}$.

$P_5(x) = \sum_{k=0..5} (11x)^k / k!$. At $x=1/100$, sum = 1.1162780680.

06

Find the degree-6 Maclaurin polynomial for $e^{(4x)}$, and use it to approximate $e^{(4/100)}$.

$P_6(x) = \sum_{k=0..6} (4x)^k / k!$. At $x=1/100$, sum = 1.0408107742.