

Taak definitie afgeleide

Virga Jessecollege

Hasselt

Datum:

Klas: V

Naam:.....

Toets WISKUNDE

leerkracht: Karel Appeltans

schooljaar.....

Afdeling:

Aantal uren wiskunde: 6

Voor iedereen:

\* $f'(2)$  wordt berekend

\*vergelijking raaklijn wordt opgesteld

\*grafiek +aanduiding raaklijn (mag m.b.v. geogebra)

1	<p>State and use the limit definition to compute the derivative function <math>f'(x)</math> for the function:</p> $f(x) = \frac{1}{2x - 1}$
2	<p>Using the <b>definition of the derivative</b>, find <math>f'(x)</math> if <math>f(x) = \frac{1}{x + 2}</math>.</p>
3	<p>(12 points) Use the definition of the derivative as the limit of difference quotients in order to compute the derivative of the function <math>f(x) = \frac{2}{x - 3}</math>. No points will be given if the definition is not used.</p>
4	<p>(8 points) Use the definition of the derivative to find <math>f'(x)</math> for <math>f(x) = \sqrt{5 + x}</math>. No points will be given for any shortcut formulas used.</p>
5	<p>(10 points) Using the definition of the derivative as the limit of a difference quotient, find <math>\frac{dy}{dx}</math> if <math>y = \frac{x^2}{2} - 5</math>.</p>
6	<p>(10 points) Using the definition of the derivative as the limit of a difference quotient, find <math>\frac{dy}{dx}</math> if <math>y = 2x^3 - 3x^2</math>.</p>
7	<p>(12 points) Let <math>f(x) = 3x^2 - 4</math>. <b>Use the limit definition</b> of the derivative to compute <math>f'(x)</math>. No credit will be given to the correct answer without the limit computation!</p>
8	<p>[10 points total] Suppose <math>f(x) = \frac{1}{3x}</math>. Using the definition of the derivative, find <math>f'(2)</math>. (You will receive NO credit for finding the derivative using a different method.)</p>
9	<p><u>Use the definition of the derivative</u> to find <math>dy/dx</math> for <math>y = \sqrt{9 - 4x}</math>.</p>

10	<p>2. Let</p> $f(x) = \frac{1}{x^2}$ <p>Find <math>f'(x)</math> by using the definition of the derivative.</p>
11	<p>Given <math>f(x) = 3x^2 + 1</math>, find the value of the derivative at <math>x=4</math>.</p> <p>m.b.v de definitie</p>
12	<p>Find the slope of a line tangent to the curve</p> $f(x) = x^2 + 2x + 1$ <p>at the point where <math>x</math> is 3</p> <p>m.b.v. een definitie naar keuze</p>
13	<p>10. Let</p> $f(x) = \frac{1}{3x + 1}$ <p>(a) Find the derivative <math>f'(x)</math> using the limit definition of the derivative.</p>
14	<p>Let <math>f(x) = \frac{1}{2x + 1}</math>. Use the definition of the derivative to find <math>f'(2)</math>. No marks will be given for the use of any differentiation rules.</p>
15	<p>(6 points) Consider the function <math>f</math> defined below:</p> $f(x) = \frac{1}{\sqrt{x-1}}, \quad \text{for } x > 1.$ <p>Use the <b>definition of the derivative</b> to compute <math>f'(2)</math>. (<u>Note</u>: No credit will be given for using any other method, correct answer notwithstanding.)</p>
16	<p>Let <math>f(x) = \frac{1}{x+1}</math>. Compute <math>f'(x)</math> by the definition</p>
17	<p>Let <math>f(x) = \sqrt{2x+5}</math>. Compute <math>f'(x)</math> by the definition</p>
18	<p><b>Example 4:</b> Let <math>f(x) = \frac{2}{x-1}</math> be given.</p> <p>(a) Use definition of the derivative to find <math>f'(x)</math>.</p>
19	<p><b>Example 5:</b> Let <math>f(x) = \frac{1}{\sqrt{x+2}}</math> be given.</p> <p>(a) Use definition of the derivative to find <math>f'(x)</math>.</p>

20	<p>9. State the definition of the derivative of <math>f(x)</math> at point <math>a</math>, using limits. Using only this definition and limits, calculate <math>f'(2)</math>, for</p> $f(x) = x^2 + \frac{1}{x^2}.$
21	$f(x) = \frac{3}{x-4}$ Bepaal $f'(x)$ m.b.v. de definitie
22	$f(x) = (x + 1)^3$ Bepaal $f'(x)$ m.b.v. de definitie
23	(8 points) Use the definition of the derivative to find $f'(x)$ for $f(x) = \sqrt{7+x}$ . No points will be given for any shortcut formulas used.
24	$f(x) = \frac{5}{2x+1}$ Bepaal $f'(x)$ m.b.v. de definitie
25	Let $f(x) = \sqrt{2x+5}$ . Compute $f'(2)$ by the definition
26	5. Let $f(x) = 5x^2 + x$ . Using only the definition of the derivative, find the value of $f'(2)$ . Justify your answer.
27	Use the Limit Definition of the Derivative to find the derivative of $f(x) = \sqrt{2x+3}$ at the point $a = 3$ . NO CREDIT will be given if Limit Definition is not used.