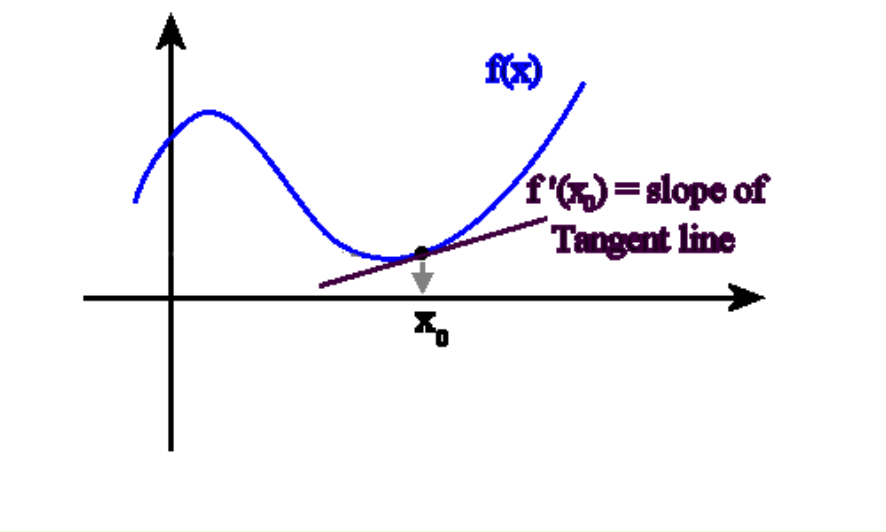
Unit 5
Day 5

Derivatives Quiz Day



Warm Up (Quiz Day)

1) Find the equation of the line tangent to $y = 2x^3 + 4x^2 + x \;\; at \;\; x = 2$

On your way in:
Phones (off) and in Blue Pockets

2) Use the limit definition to find the derivative of $f(x) = \dfrac{2}{x-3}$

Warm Up (Quiz Day) ANSWERS

1) Find the equation of the line tangent to $y = 2x^3 + 4x^2 + x \;\; at \;\; x = 2$

$$y - 34 = 41(x - 2)$$

$$y = 41x - 48$$

2) Use the limit definition to find the derivative of $f(x) = \dfrac{2}{x-3}$

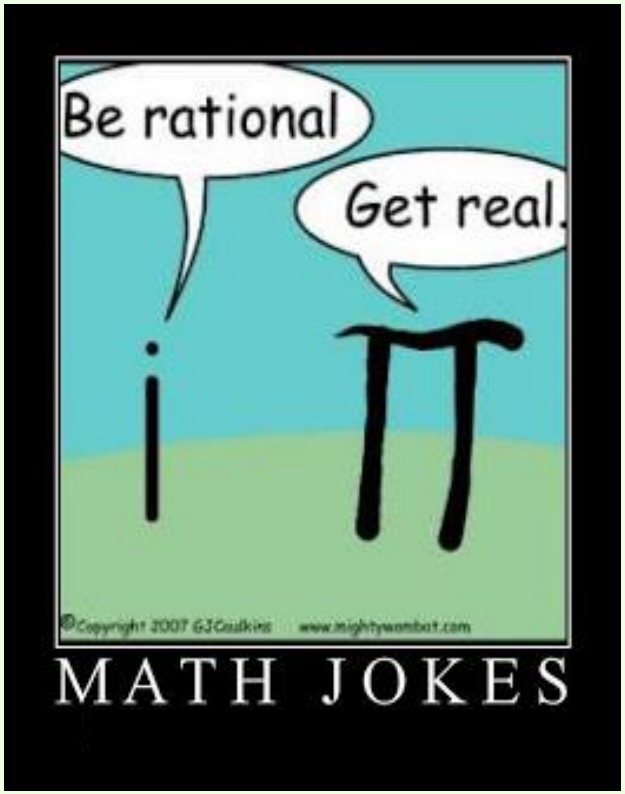
$$f'(x) = \frac{-2}{x^2 - 6x + 9}$$

Homework Questions?!

Tonight's Homework

- MATHO Packet p. 6 Odds

- Study formulas!



Unit 5
Whiteboard Quiz Review

Derivatives

Practice: (Quiz Day)

1. Using the **limits definition of derivatives**, find the derivative of g(x) given below: Simplify your answer. $g(x) = \sqrt{x-3}$

Practice: (Quiz Day)
ANSWERS

1. Using the **limits definition of derivatives**, find the derivative of g(x) given below: Simplify your answer. $g(x) = \sqrt{x-3}$

$$g'(x) = \frac{1}{2\sqrt{x-3}}$$

Find the derivative using the **power rule**. Write your answer with positive, whole exponents or radicals.

$$f(x) = 4x^4 - 5x + 2\sqrt{x} - 3$$

$$f'(x) = 16x^3 - 5 + \frac{1}{\sqrt{x}}$$

Find the derivative using the **power rule**. Write answers with positive, whole exponents or radicals.

$$f(x) = -\frac{3}{x^7} + \frac{2}{x^4} + \sqrt[3]{x^7}$$

$$f'(x) = \frac{21}{x^8} - \frac{8}{x^5} + \frac{7\sqrt[3]{x^4}}{3}$$

Practice: (Quiz Day)

Find the equation of the line tangent to

$$y = -4x^2 - 6x + 2 \quad at \quad x = 3$$

$$y + 52 = -30(x - 3)$$

$$y = -30x + 38$$

Find the slope of the function $y = -x^2 - 12\sqrt{x} - 5$ at x = 9.

$m = -20$

Find the derivative using the **power rule**.

$$g(x) = -\frac{1}{2}x^4 + 3x^{\frac{5}{3}} + 2x$$

$$g'(x) = -2x^3 + 5x^{\frac{2}{3}} + 2$$

Find the equation of the line tangent to $y = x^3 - 3x^2 + 2$ point at (3, 2).

$$y - 2 = 9(x - 3)$$

$$or \quad y = 9x - 25$$

What is the limit definition of a derivative?

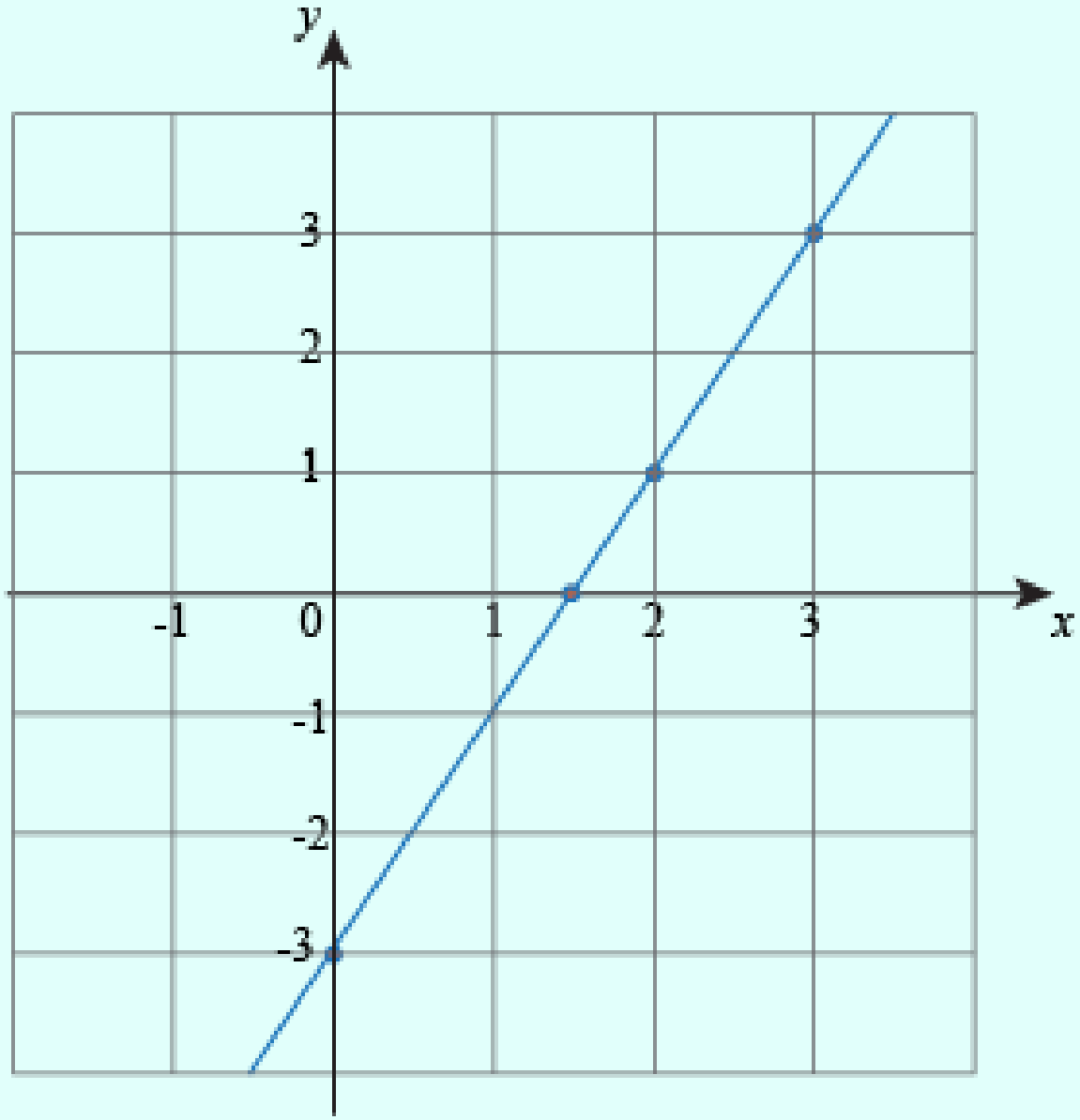
$$\lim_{h \to 0} \frac{f(x+h) - f(x)}{h}$$

Find the derivative using the **limit definition** of derivatives.

$$f(x) = 2x - 4$$

$$f'(x) = 2$$

Find the derivative of the function.



$$y' = 2$$

Find the derivative using the **limit definition** of derivatives.

$$g(x) = x^2 - 5x + 6$$

$$g'(x) = 2x - 5$$

Find the slope intercept equation of the tangent line of when x = 2

$$g(x) = 5x^2 - 3x + 7$$

$$y = 17x - 13$$

Find the derivative using the **limit definition** of derivatives.

$$h(x) = \sqrt{2 + x}$$

$$h'(x) = \frac{1}{2\sqrt{x+2}}$$

Find the equation of the line tangent to $y = x^3 - 2x^2 + 2$ point at (2, 2).

$$y - 2 = 4(x - 2)$$

$$or \quad y = 4x - 6$$

Find the derivative using the **limit definition** of derivatives.

$$h(x) = \frac{2}{x+3}$$

$$h'(x) = \frac{-2}{x^2+6x+9} = \frac{-2}{(x+3)^2}$$

Find the derivative using the **power rule**.

$$f(x) = x^{\frac{2}{3}}$$

$$f'(x) = \frac{2}{3x^{\frac{1}{3}}} \quad OR \quad \frac{2}{3\sqrt[3]{x}}$$

Find the derivative of the function $y = -x^3 + 3x^2 + 3$ at x = -1.

$f'(x) = -9$

MATHO

Tonight's Homework

- MATHO Packet p. 6 Odds

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