Precalc 15.1-15.2

Quiz 15.2 is today

Test Mon. MCT 15.1-15.2

Lesson 15-1 *(Pages 941–948)*

Evaluate each limit.

1. $\lim\limits_{x \to 4} (x^2 + 2x - 2)$ = 22
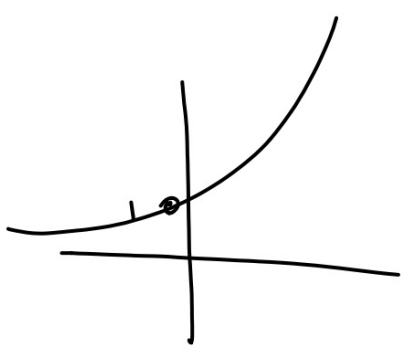
   16 + 8 - 2

5. $\lim\limits_{x \to -2} \dfrac{x^2 + 5x + 6}{x^2 + x - 2}$

$4 \ -2 -2 = 0$

$\dfrac{3}{5} \overset{6}{\diagdown} 2$

$\dfrac{-2}{1} \ 2 \diagup -1$

$\dfrac{(x+3)(x+2)}{(x+2)(x-1)} = -\dfrac{1}{3}$

Lesson 15-2 *(Pages 951–960)*

Use the definition of derivative to find the derivative of each function.

1. $f(x) = 5x$ $f(x+h)$ $f(x)$

2. $f(x) = 9x - 2$

$$9x + 9h - 2 - 9x + 2$$

$$f'(x) = \lim_{h \to 0} \frac{(9(x+h) - 2) - (9x - 2)}{x + h - x} = \frac{9h}{h} = 9$$

Use the derivative rules to find the derivative of each function.

3. $f(x) = \frac{1}{2}x + \frac{2}{3}$

4. $f(x) = x^2 + 4x + 8$

$f'(x) = 1 \cdot \frac{1}{2}x^0$

$= \frac{1}{2} + 0$

$2x^1 + 4 \cdot 1x^0$

$2x + 4$
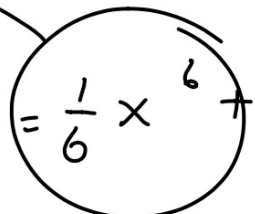
What are we going to forget?

Find the antiderivative of each function.

5. $f(x) = x^5$

6. $f(x) = 2x^2 - 8x + 2$ $+2\left(\frac{x^1}{1}\right)$

$F(x) = \dfrac{x^6}{6} \left(= \dfrac{1}{6} x^6 + C\right)$

$F(x) = 2\left(\dfrac{x^3}{3}\right) - 8\left(\dfrac{x^2}{2}\right)$

$= \dfrac{2}{3}x^3 - 4x^2 + 2x + C$

At most one physics question
position
velocity
acceleration

$$V = \frac{1}{2}\left(\frac{x^3}{3}\right) + 3\left(\frac{x^1}{1}\right) \qquad \frac{1}{6}x^3 + 3x + C$$

$$V = \frac{1}{2}x^2 + 3$$

$$V' = \frac{1}{2}(2x)$$

$$V' = x$$

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