

Pg 145 - 146:

(2) -3

(8) 0

$$(f+g)(x) = 2x^2 + \frac{2}{x-5} = \frac{2x^3 - 10x^2 + 2}{x-5}, x \neq 5$$

31b.

$$(f+g)(x) = \frac{1}{x} + x - 3 = \frac{x^2 - 3x + 1}{x}, x \neq 0$$

$$(f-g)(x) = 2x^2 - \frac{2}{x-5} = \frac{2x^3 - 10x^2 - 2}{x-5}, x \neq 5$$

$$(f-g)(x) = \frac{1}{x} - x + 3 = \frac{-x^2 + 3x + 1}{x}, x \neq 0$$

$$(fg)(x) = \frac{4x^2}{x-5}, x \neq 5$$

$$(fg)(x) = 1 - \frac{3}{x} = \frac{x-3}{x}, x \neq 0$$

$$(ff)(x) = 4x^4$$

$$(ff)(x) = \frac{1}{x^2}, x \neq 0$$

$$(f/g)(x) = x^2(x-5) = x^3 - 5x^2, x \neq 5$$

$$(f/g)(x) = \frac{1}{x(x-3)}, x \neq 0, 3$$

$$(g/f)(x) = \frac{1}{x^2(x-5)}, x \neq 0, 5$$

$$(g/f)(x) = x(x-3) = x^2 - 3x, x \neq 0$$

C1 Ditto 2:

5. $y = -3/2x + 1$

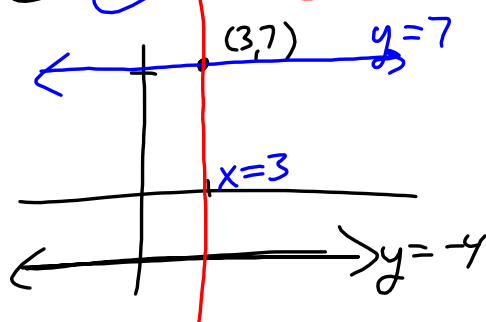
6. Perpendicular: $x = 3$
Parallel: $y = 7$

(60) -27

(63) $(f \circ g)(x) = \frac{4x}{x-5}, x \neq 0, 5$

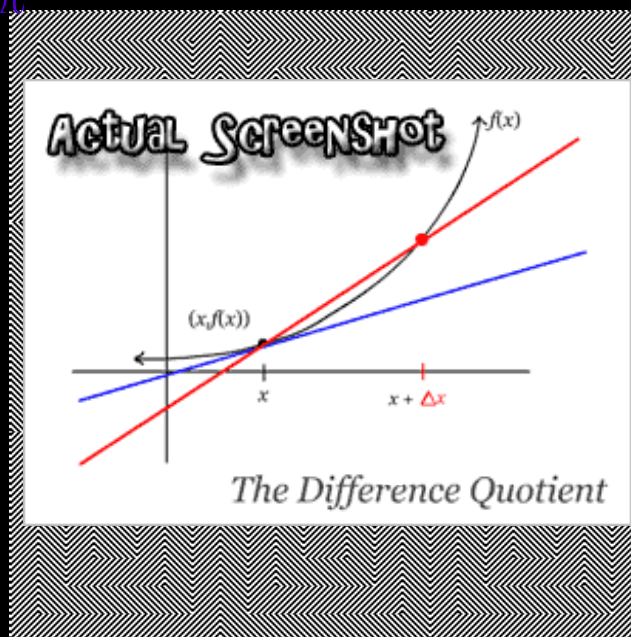
$$(g \circ f)(x) = \frac{1-5x}{4}, x \neq \frac{1}{5}$$

Aug 22-10:28 AM

(6) // and $\perp$ $y = -4$, $(3, 7)$


Sep 22-9:13 AM

Difference Quotient

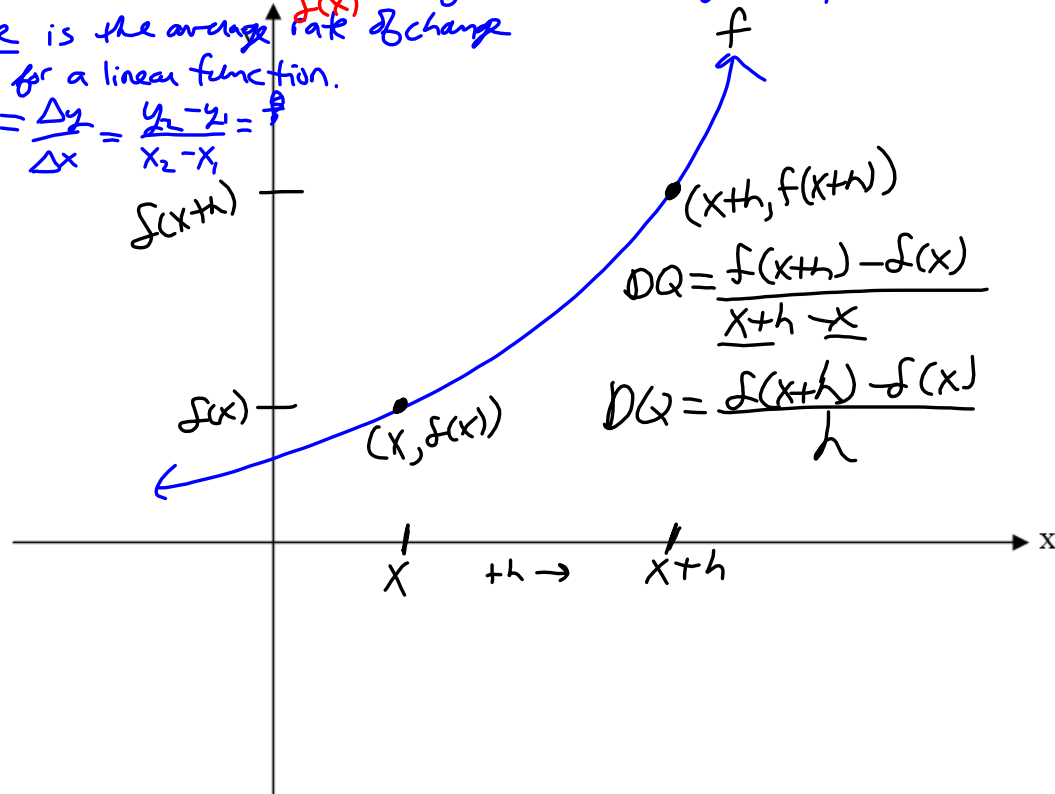


Sep 8-4:55 PM

DIFFERENCE QUOTIENT - is the average rate of change for a non linear function

Slope is the average rate of change for a linear function.

$$= \frac{\Delta y}{\Delta x} = \frac{y_2 - y_1}{x_2 - x_1} = \frac{f(x_2) - f(x_1)}{x_2 - x_1}$$



Sep 8-7:57 PM

$$DQ = \frac{f(x+h) - f(x)}{h}$$

Find DQ for:

$$f(x) = 2x \quad f(x+h) = 2(x+h) = 2x + 2h$$

$$DQ = \frac{f(x+h) - f(x)}{h} = \frac{\cancel{2x} + 2h - \cancel{2x}}{h}$$

$$DQ = \frac{2h}{h}$$

$$DQ = 2$$

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Find DQ for:

$$f(x) = x^2 + 1 \quad f(x+h) = (x+h)^2 + 1$$

$$= x^2 + 2xh + h^2 + 1$$

$$DQ = \frac{f(x+h) - f(x)}{h} = \frac{\cancel{x^2} + 2xh + h^2 + \cancel{1} - (\cancel{x^2} + \cancel{1})}{h}$$

$$DQ = \frac{2xh + h^2}{h} = 2x + h$$

$$DQ = 2x + h$$

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Find DQ for:

$$f(x) = x - x^2 \quad f(x+h) = (x+h) - (x+h)^2$$

$$= x+h - (x^2 + 2xh + h^2)$$

$$= x+h - x^2 - 2xh - h^2$$

$$DQ = \frac{f(x+h) - f(x)}{h} = \frac{\cancel{x} + h - \cancel{x^2} - 2xh - h^2 - \cancel{x} + \cancel{x^2}}{h}$$

$$DQ = \frac{h - 2xh - h^2}{h} = 1 - 2x - h$$

$$DQ = 1 - 2x - h$$

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4. $f(x) = x^3 + x$ $f(x+h) = (x+h)^3 + (x+h)$

$$= 1 \underline{x^3 h^0} + 3 \underline{x^2 h^1} + 3 \underline{x^1 h^2} + 1 \underline{x^0 h^3} + x+h$$

$$= x^3 + 3x^2h + 3xh^2 + h^3 + x+h$$

$$DQ = \frac{f(x+h) - f(x)}{h} = \frac{\cancel{x^3} + 3x^2h + 3xh^2 + h^3 + \cancel{x} + h - \cancel{x^3} - \cancel{x}}{h}$$

$$DQ = 3x^2 + 3xh + h^2 + 1$$

Aug 23-8:38 PM

HW: Ch 1 Ditto 3: all
Ch 1 Ditto 2: 7 & 8

Quiz Tuesday

Sep 29-7:20 AM

Sep 21-5:40 PM