



From: Elise Goss Elise.Goss@fitchlearning.com 
Subject: RE: mistake correct. FINAL VERSION
Date: July 25, 2016 at 4:31 AM
To: 
Cc: Joanne McCluskey Joanne.McCluskey@fitchlearning.com, Riaz Ahmad Riaz.Ahmad@fitchlearning.com

EG

Hi Michael,

Thank you for submitting your Maths Test. You have scored 24/26, well done!

The answers you got incorrect are as follows:

Question 1- D

Question 2- B

Please see solutions to these questions attached.

Any queries, please let me know.

Thanks

Elise Goss
CQF Programme Executive

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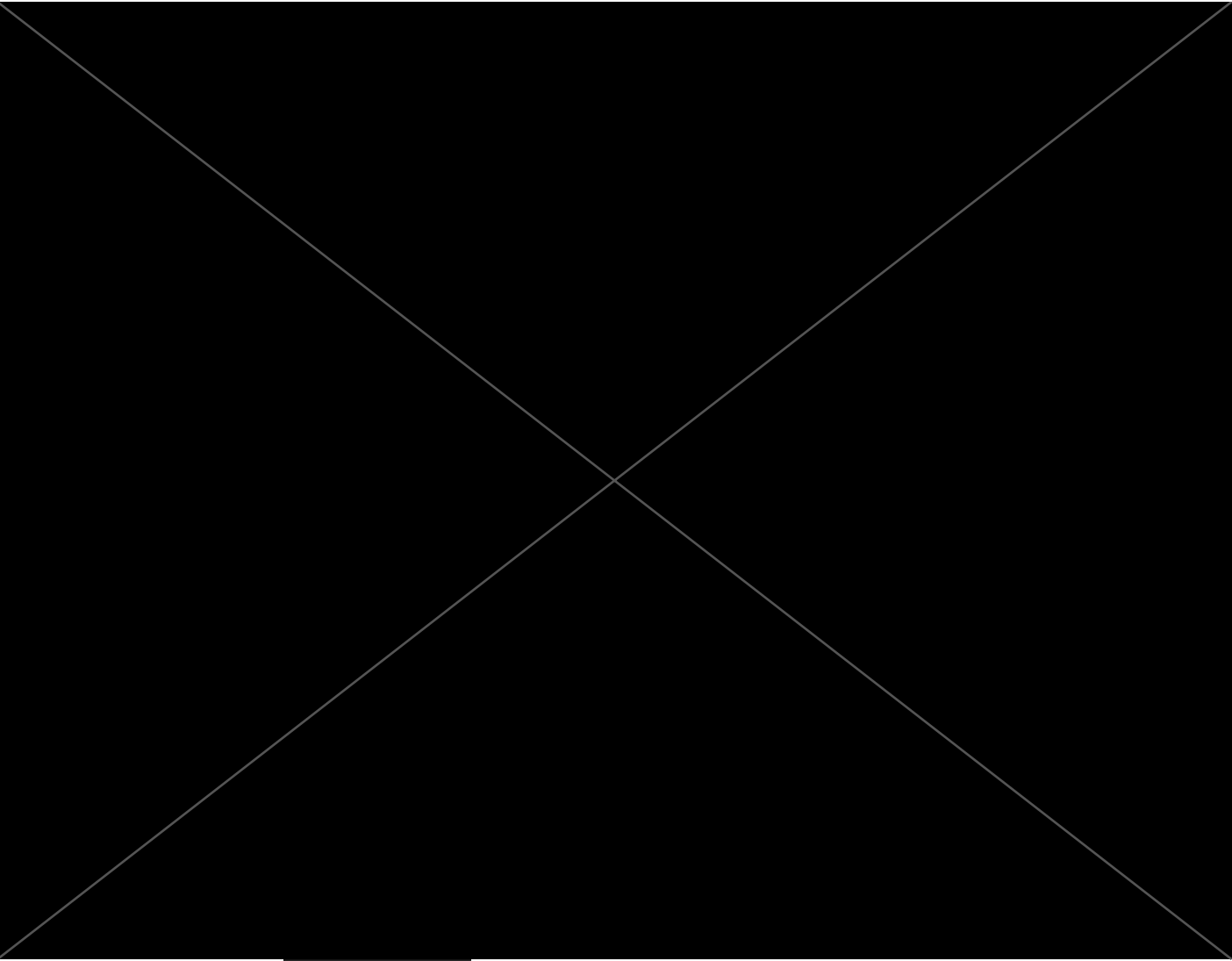
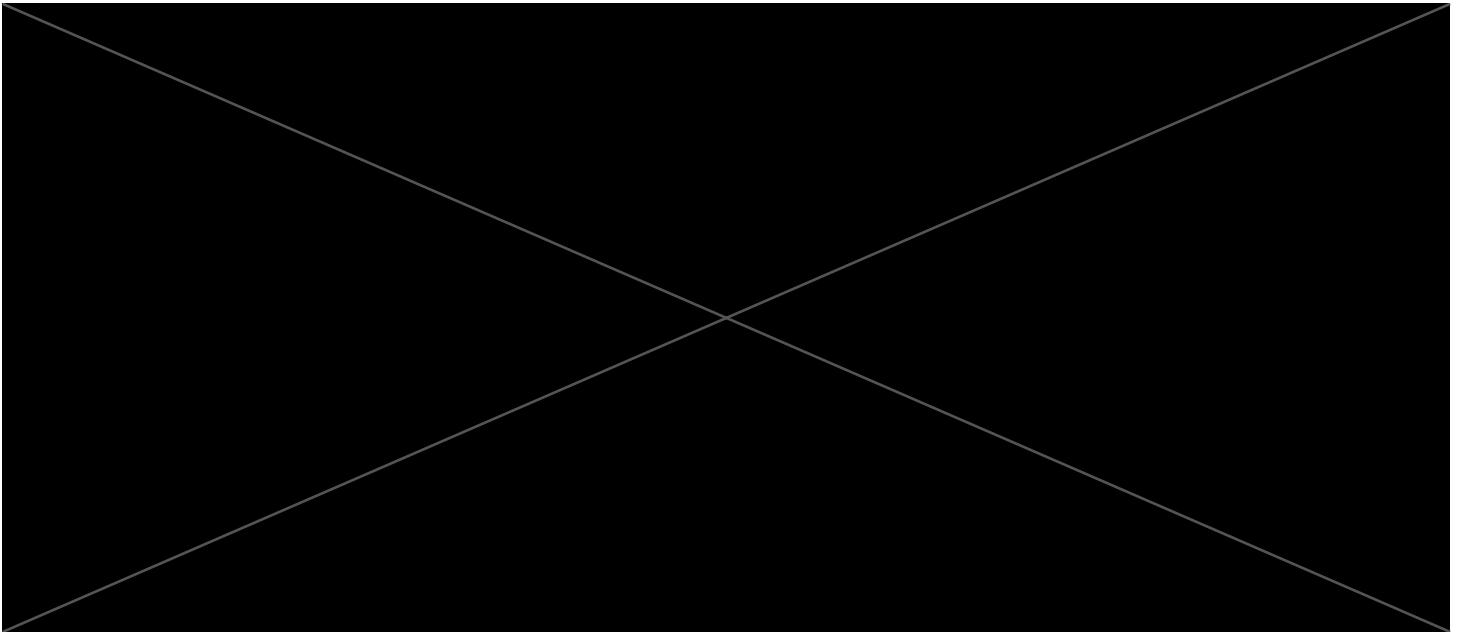
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From: 
Sent: 24 July 2016 06:30


Cc: Joanne McCluskey <Joanne.McCluskey@fitchlearning.com>; Elise Goss <Elise.Goss@fitchlearning.com>; Riaz Ahmad <Riaz.Ahmad@fitchlearning.com>
Subject: Re: mistake correct. FINAL VERSION

Sorry for the redundant emails everyone! I just realized I sent the wrong version of the test upload!



[merged.pdf](#)

Dear Elise, Joanne, Riaz.

Sorry for the delay in getting this uploaded...
It's the math Aptitude test.

It took me a while to work out the problems. Deceptively easy looking.. much more difficult than I expected. --- anyway. let me know if you have any issues opening the PDF.

It's the
NOTES & TEST

It's a big document so, check out the google link hope this works, because I've never used the google drive feature.

Too large to send via email.
If you have problems

Please contact me.. I'll fax it or something.

Michael Epstein
CQF JUNE 2016



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1. $f(x) = xe^{-x}$ then using the product rule

$$f'(x) = \left(\frac{d}{dx}x\right)e^{-x} + x\left(\frac{d}{dx}e^{-x}\right)$$
$$f'(x) = e^{-x} - xe^{-x}$$

differentiating once more we have

$$f''(x) = \frac{d}{dx}(e^{-x} - xe^{-x})$$
$$= \frac{d}{dx}(e^{-x}) - \frac{d}{dx}(xe^{-x})$$

using the product rule in the second term

$$= -e^{-x} - (e^{-x} - xe^{-x})$$
$$= -2e^{-x} + xe^{-x}$$

$$= f(x) - 2e^{-x}$$

2. $y = \ln |1 - x|$ we need to find an expression for $\frac{dy}{dx} + x \frac{d^2y}{dx^2}$

Note that $\frac{dy}{dx} = -\frac{1}{1-x}$ (whatever happens to the absolute value?) and $\frac{d^2y}{dx^2} = -\frac{1}{(1-x)^2}$
 this implies that

$$\begin{aligned} \frac{dy}{dx} + x \frac{d^2y}{dx^2} &= -\frac{1}{1-x} - \frac{x}{(1-x)^2} \\ &= \frac{-1+x-x}{(1-x)^2} = -\frac{1}{(1-x)^2} \end{aligned}$$