

# Financial Mathematics

## Clicker review session B, Final

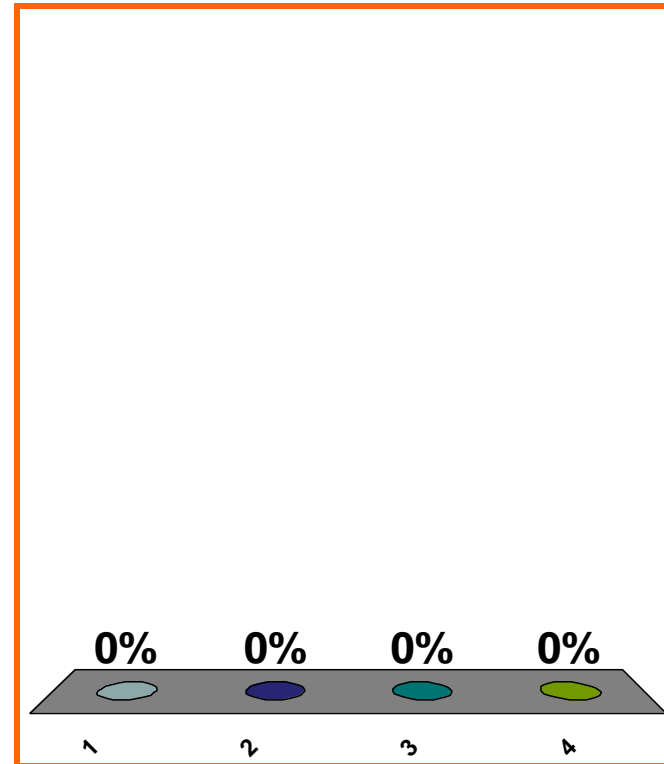
Compute  $\int_{1+i}^{2+i} e^{-x} dx$ .

(a)  $e^{2+i} - e^{1+i}$

(b)  $[-e^{2+i}] - [-e^{1+i}]$

(c)  $-e^{-(2+i)} + e^{-(1+i)}$

(d)  $e^{-(2+i)} - e^{-(1+i)}$



Compute  $\left( \int_{1+i}^{2+4i} + \int_{2+4i}^{3-7i} + \int_{3-7i}^{1+i} \right) e^{-x} dx$ .

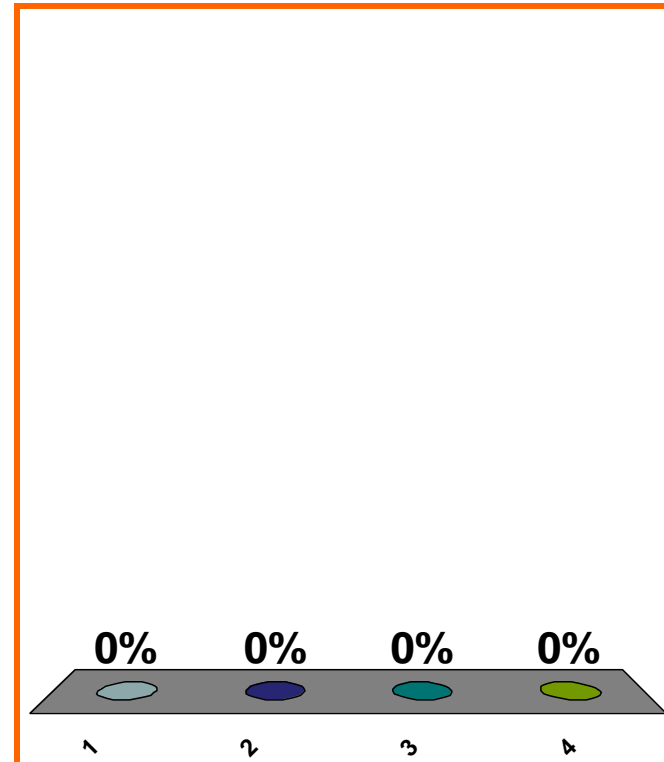
(a)  $e^{1+i} + e^{2+4i} + e^{3-7i}$

(b)  $-e^{1+i} - e^{2+4i} - e^{3-7i}$

(c)  $-e^{-(1+i)} - e^{-(2+4i)}$   
 $-e^{-(3-7i)}$

(d) none of the above

0



Compute  $\left( \int_{1+i}^{2+4i} + \int_{2+4i}^{3-7i} + \int_{3-7i}^{1+i} \right) \frac{e^{-x^2/2}}{\sqrt{2\pi}} dx$ .

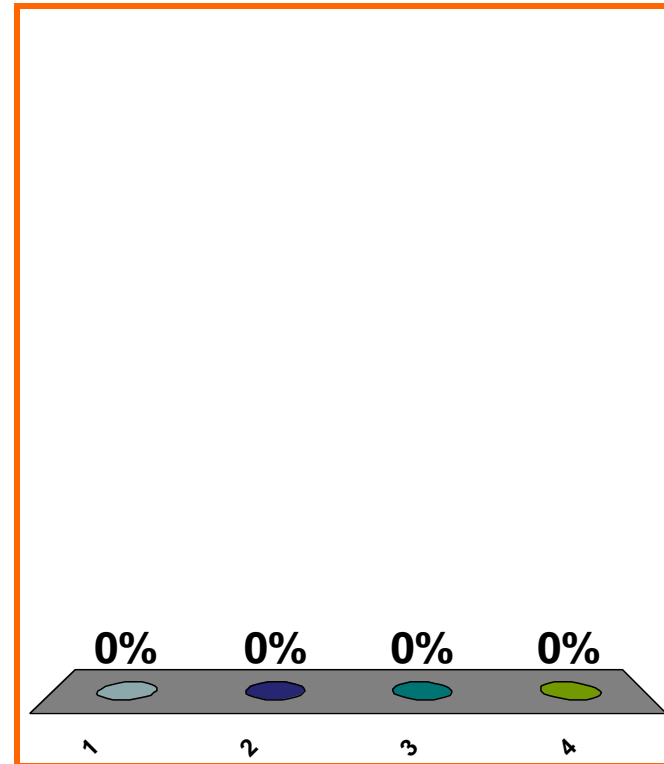
(a)  $\Phi(1+i) + \Phi(2+4i)$   
 $\Phi(3-7i)$

(b)  $-\Phi(1+i) - \Phi(2+4i)$   
 $-\Phi(3-7i)$

(c)  $-\Phi(-1-i) - \Phi(-2-4i)$   
 $-\Phi(-3+7i)$

(d) none of the above

0



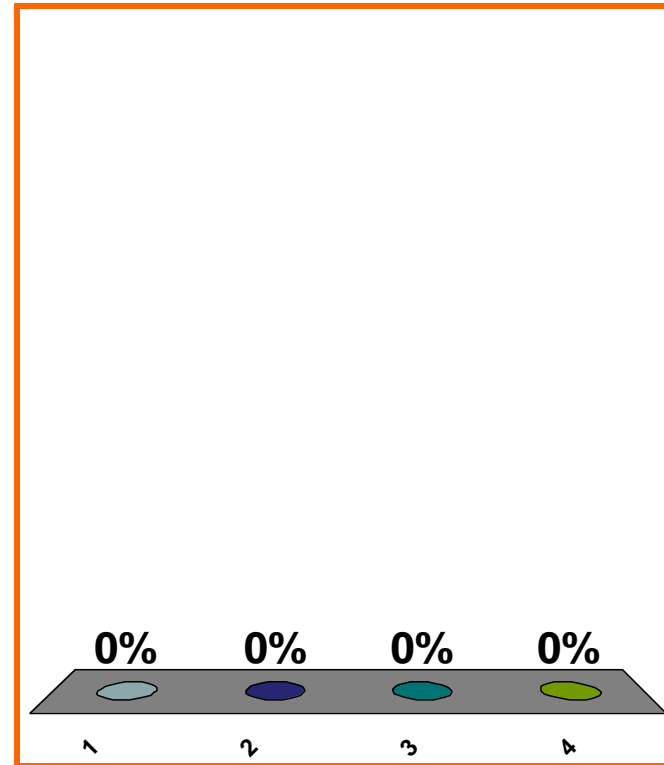
Compute  $\int_{1+i}^{2+i} \bar{z} dz$ .

(a)  $\frac{3}{2} - i$

(b)  $\frac{3}{2} + i$

(c)  $3 - i$

(d)  $3 + i$



$$f(x) = 1 - 2x^2 + (\varepsilon(x))(x^2)$$

$$\varepsilon(x) \rightarrow 0 \text{ as } x \rightarrow 0$$

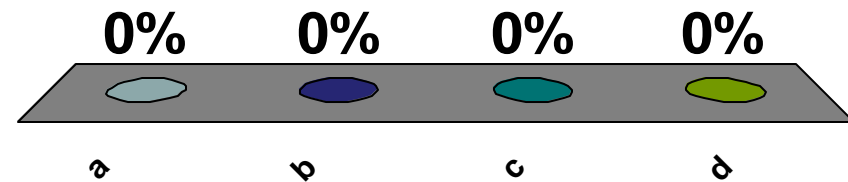
$$f(3/\sqrt{n}) = ??$$

a.  $1 - (18/n) + (\delta_n/n^2)$

b.  $1 - (18/n^2) + (\delta_n/n)$

c.  $1 - (18/n) + (\delta_n/n)$

d. none of the above



$$f(x) = 1 - \frac{x^2}{2} + (\varepsilon(x))(x^2)$$

$$\varepsilon(x) \rightarrow 0 \text{ as } x \rightarrow 0$$

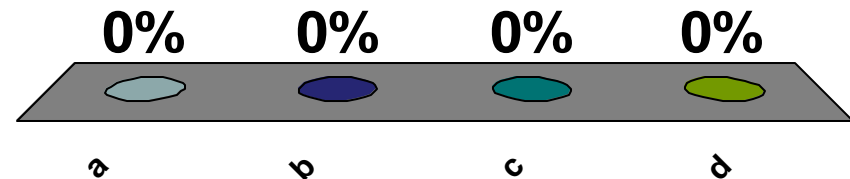
$$f(2/\sqrt{n}) = ??$$

a.  $1 - (2/n) + (\delta_n/n^2)$

b.  $1 + (2/n) + (\delta_n/n^2)$

c.  $1 - (4/n) + (\delta_n/n)$

d. none of the above



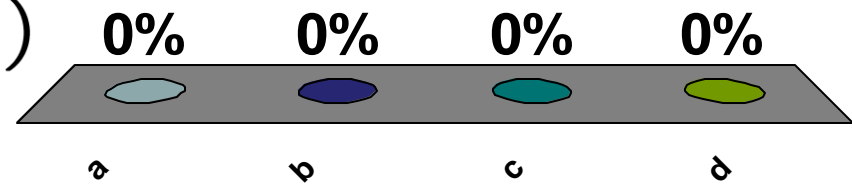
$\cos(x) = ??$ , to second order at 0

a.  $x + (\varepsilon(x))(x^2)$

b.  $-x + (\varepsilon(x))(x^2)$

c.  $1 - (x^2/2) + (\varepsilon(x))(x^2)$

d.  $1 + (x^2/2) + (\varepsilon(x))(x^2)$





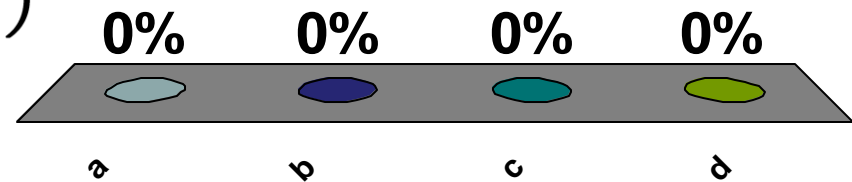
$\sin(x) = ??$ , to second order at 0

a.  $x + (\varepsilon(x))(x^2)$

b.  $-x + (\varepsilon(x))(x^2)$

c.  $1 - (x^2/2) + (\varepsilon(x))(x^2)$

d.  $1 + (x^2/2) + (\varepsilon(x))(x^2)$



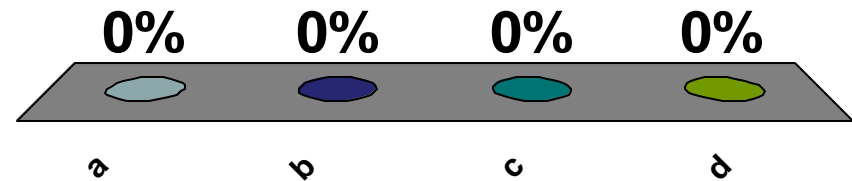
$e^x = ??$ , to second order at 0

a.  $1 + x + (\varepsilon(x))(x^2)$

b.  $1 + x + \frac{x^2}{2} + (\varepsilon(x))(x^2)$

c.  $1 - x + \frac{x^2}{2} + (\varepsilon(x))(x^2)$

d.  $1 + (\varepsilon(x))(x^2)$



$$f(x) = (\sin x) - x + (\cos 5x)$$

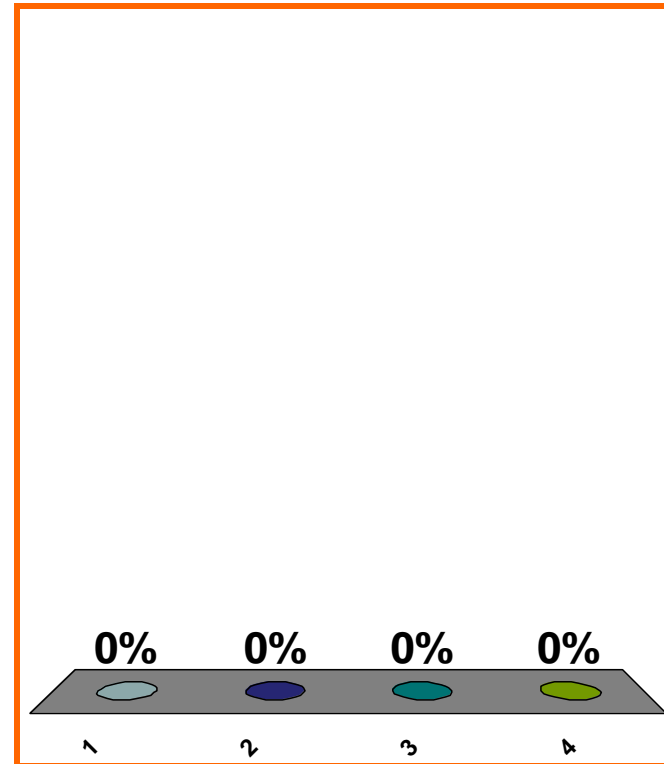
$$\lim_{n \rightarrow \infty} [f(x/\sqrt{n})]^n$$

(a)  $e^{-x^2/2}$

(b)  $e^{-x^3/12} + e^{-25x^2/2}$

(c)  $e^{-25x^2/2}$

(d)  $(\sin x) - x + e^{5x^2/2}$



$$f(x) = (\sin x) - x + x^5 + (\cos 3x)$$
$$\lim_{n \rightarrow \infty} [f(x/\sqrt{n})]^n$$

(a)  $e^{-x^2/2}$

(b)  $e^{-x^3/12} + e^{-x^5}$   
 $+ e^{-9x^2/2}$

(c)  $e^{-9x^2/2}$

(d)  $(\sin x) - x + e^{3x^2/2}$

