



PCA derivation



Video: Welcome to module
TO PASS 80% or higher

4
1 min

Reading: Vector spaces

20 min



Reading: Orthogonal
complements

20 min

TOTAL POINTS 7

Congratulations! You passed!

PRACTICE QUIZ 40 MIN

Keep Learning

GRADE

89.79%

Chain rule practice

Chain rule practice



Submit your assignment

Try again



Video: Problem setting and

1. Consider the function $h : \mathbb{R} \rightarrow \mathbb{R}$, where $h(t) = (f \circ g)(t) = f(g(t))$ with

7 min



Reading: Multivariate chain
rule

20 min



Receive grade

TO PASS 80% or higher



$f(\mathbf{x}) = \exp(x_1 x_2^2)$, $\mathbf{x} = \begin{bmatrix} x_1 \\ x_2 \end{bmatrix} \in \mathbb{R}^2$

Practice Quiz: Chain rule

practice

Grade

89.79%

View Feedback

We keep your highest score



3 questions

$\frac{dh}{dt} = \exp(x_1 x_2^2) [x_2^2 (\cos t - t \sin t) + 2x_1 x_2 (\sin t + t \cos t)]$ with $x_1 =$



Video: Finding the
coordinates of the projected
data

5 min



Correct

Video: Reformulation of the

objective. Yes, this is what we get when we apply the chain-rule. Well done!

10 min



Reading: [arrange $2x_2 x_1 x_2^2$
multipliers

20 min



$\frac{dh}{dt} = \cos t - t \sin t + 2t \sin t (\sin t + t \cos t)$

Video: Finding the basis

vectors that span the

principal subspace



$\frac{dg}{dt} = \begin{bmatrix} \sin t - t \cos t \\ \cos t + t \sin t \end{bmatrix}$

7 min

PCA algorithm



$\frac{dg}{dt} = \begin{bmatrix} \cos t - t \sin t \\ \sin t + t \cos t \end{bmatrix}$

Correct

Well done