LEMBAR KERJA PESERTA DIDIK 2

Turunan Fungsi Trigonometri

A. Perhatikan kembali materi dalam video ini

B. kerjakan soal dibawah ini!

1. Tentukan turunan fungsi trigonometri berikut.

$f(x) = 2x\ cos\ x - x^3$

Penyelesaian:

$y = 2x \cos x - x^3$

Untuk $2x.\cos x$ dimisalkan:

$u = 2x \rightarrow u' = 2$

$v = \cos x \rightarrow v' =$ [ ]

Jadi,

$y' = 2.$ [ ] $+ 2x.$ [ ]

$y' =$ [ ]

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2. Tentukan $f'(x)$ dan nilai $f'(x)$ dari fungsi $f(x) = 3x - cos\ x + tan\ x$ untuk $x = \frac{\pi}{3}$.

Penyelesaian:

$f(x) = 3x - cos\ x + tan\ x$

$f'(x) = 3 + sin\ x -$ [ ]

$f'\left(\frac{\pi}{3}\right) = 3 +$ [ ]

$= 3 +$ [ ]

$=$ [ ]

3. Jika $f(x) = 4\ cos^3 x$, maka tentukan nilai $f'(x)$ untuk $x = \frac{\pi}{3}$

Penyelesaian

$f(x) = 4\ cos^3 x$

$f'(x) =$ [ ] $.(-sinx)$

$f'(x) = -12.sinx.cos^2 x$

$f'\left(\frac{\pi}{3}\right) = -12.$ [ ]

$f'\left(\frac{\pi}{3}\right) =$ [ ]

$f'\left(\frac{\pi}{3}\right) =$ [ ]

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4. Jika $f(x) = 3.sinx.cosx$, maka tentukan nilai $f'\left(\frac{1}{4}\pi\right)$

Penyelesaian

U = 3 sin x

U' = 3 cos x

V = cos x

V' = -sin x

$f'(x) = U'V + UV'$

$f(x) = 3.sinx.cosx$

$f'(x) =$ [ ]

$f'(x) = 3cos^2 x - 3sin^2 x$

Subsitusikan $x = \frac{1}{4}\pi$, maka

$f'\left(\frac{1}{4}\pi\right) =$ [ ] $- 3sin^2(\frac{1}{4}\pi)$

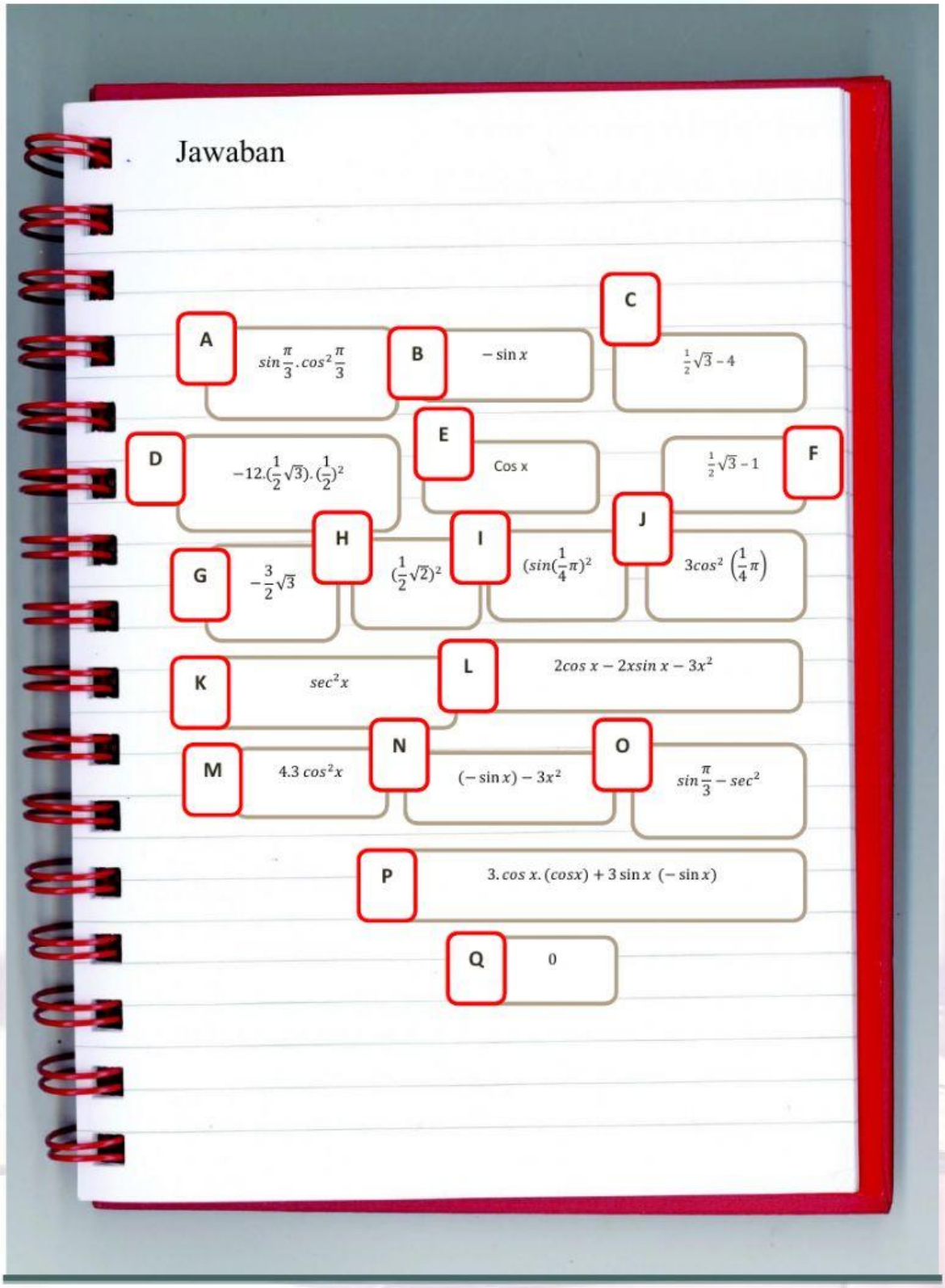
$f'\left(\frac{1}{4}\pi\right) = 3\left[(\cos\left(\frac{1}{4}\pi\right)^2 -\right.$ [ ] $\left.\right]$

$f'\left(\frac{1}{4}\pi\right) = 3\left[\right.$ [ ] $\left. - (\frac{1}{2}\sqrt{2})^2\right]$

$f'\left(\frac{1}{4}\pi\right) =$ [ ]

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