

Lembar Kerja Peserta Didik (LKPD)

Persamaan Eksponen (Jenis 1-2)

JENIS 1

INGAT: $a^{f(x)} = a^p \rightarrow f(x) = p$

- 1) Tentukan nilai x yang memenuhi persamaan $3^{2x-1} = \frac{1}{27}$

Jawab:

$$3^{2x-1} = 3^{\dots}$$

$$2x - 1 = \dots$$

$$2x = \dots$$

$$x = \dots$$

- 2) Tentukan nilai x yang memenuhi persamaan $\left(\frac{2}{5}\right)^{\frac{1}{2}} = \left(\frac{5}{2}\right)^{x+1}$

Jawab:

$$\left(\frac{2}{5}\right)^{\frac{1}{2}} = \left(\frac{2}{5}\right)^{\dots}$$

$$\frac{\dots}{\dots} = -x - \dots$$

$$x = \frac{\dots}{\dots}$$

- 3) Tentukan himpunan penyelesaian persamaan $4^{1+2x} \times 3^{4x+1} = 432$

Jawab:

$$4^{\dots} \times 4^{2x} \times 3^{\dots} \times 3^1 = 432$$

$$4^{\dots} \times 3^1 \times 4^{2x} \times 3^{\dots} = 432$$

$$(4 \times 3)^1 \times (4 \times 3^2)^{\dots} = 432$$

$$36^{\dots} = \frac{432}{4 \times 3}$$

$$36^{\dots} = \dots$$

$$x = \frac{\dots}{\dots}$$

JENIS 2

INGAT: $a^{f(x)} = a^{g(x)} \rightarrow f(x) = g(x)$

- 1) Tentukan nilai x dari persamaan $10^{2-3x} = 10^{5x-6}$

Jawab:

$$10^{2-3x} = 10^{5x-6}$$

$$2 - \dots = 5x - \dots$$

$$\dots x = \dots$$

$$x = \dots$$

- 2) Tentukan nilai x dari persamaan $\sqrt{125^{x-2}} = \left(\frac{1}{5}\right)^{3-2x}$

Jawab:

$$125^{\frac{x-2}{\dots}} = 5^{2x-3}$$

$$5^{\frac{\dots(x-2)}{\dots}} = 5^{2x-3}$$

$$\dots(x-2) = \dots(2x-3)$$

$$3x - \dots = 4x - \dots$$

$$x = \dots$$

- 3) Tentukan himpunan penyelesaian persamaan $\left(\frac{1}{9^{2x}}\right)^{\frac{1}{3}} = \frac{(27^x)^2}{81^{x-2}}$

Jawab:

$$\left(\frac{1}{3^{\dots}}\right)^{\frac{1}{3}} = \frac{3^{\dots x}}{3^{\dots(x-2)}}$$

$$3^{-\frac{\dots}{3}x} = 3^{\dots-4x+\dots}$$

$$3^{-\frac{\dots}{3}x} = 3^{\dots x + \dots}$$

$$-\frac{\dots}{3}x = \dots x + \dots$$

$$-4x = \dots x + \dots$$

$$\dots x = 24$$

$$x = -\frac{\dots}{\dots}$$