

# Kuis Persamaan Eksponen

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Nama:

## Soal 1

Tentukan himpunan penyelesaian dari persamaan berikut:

$$2^{x+1} = 16$$

**Penyelesaian:**

$$2^{x+1} = 16$$

$$2^{x+1} = 2^{\boxed{\phantom{00}}}$$

Karena basisnya sama, pangkatnya harus sama:

$$\boxed{\phantom{00}} = \boxed{\phantom{00}}$$

$$x = \boxed{\phantom{00}}$$

☒ Jadi, himpunan penyelesaiannya adalah  $\{ \boxed{\phantom{00}} \}$ .

## Soal 2

Tentukan nilai  $x$  dari :  $2^{x-3} = \frac{1}{8}$

**Penyelesaian:**

$$2^{x-3} = \frac{1}{8}$$

$$2^{x-3} = \boxed{\phantom{00}}^{\boxed{\phantom{00}}}$$

$$\boxed{\phantom{00}} = \boxed{\phantom{00}}$$

$$x = \boxed{\phantom{00}}$$

✓ Jadi,  $x = \boxed{\phantom{00}}$

### Soal 3

Tentukan nilai  $x$  dari:  $3^{2x} = 27^{x-1}$ !

**Penyelesaian:**

$$3^{2x} = 27^{x-1}$$

Ubah ke basis yang sama:

$$3^{2x} = \left( \boxed{\phantom{00}}^{\boxed{\phantom{00}}} \right)^{x-1}$$

$$3^{2x} = \boxed{\phantom{00}}^{\boxed{\phantom{00}}}$$

Karena basis sama:

$$\boxed{\phantom{00}} = \boxed{\phantom{00}}$$

$$x = \boxed{\phantom{00}}$$

✓ Jadi, penyelesaiannya adalah  $x = \boxed{\phantom{00}}$

## Soal 4

Tentukan nilai  $x$  dari:  $9^{x-1} = 27^{x-3}$ !

**Penyelesaian:**

$$9^{x-1} = 27^{x-3}$$

Ubah ke basis yang sama, yaitu 3:

$$\left( \boxed{\phantom{0}} \boxed{\phantom{0}} \right)^{x-1} = \left( \boxed{\phantom{0}} \boxed{\phantom{0}} \right)^{x-3}$$

$$\boxed{\phantom{0}} \boxed{\phantom{0}} (x-1) = \boxed{\phantom{0}} \boxed{\phantom{0}} (x-3)$$

Karena basis sama:

$$\boxed{\phantom{0}} (\boxed{\phantom{0}}) = \boxed{\phantom{0}} (\boxed{\phantom{0}})$$

$$\boxed{\phantom{0}} = \boxed{\phantom{0}}$$

$$x = \boxed{\phantom{0}}$$

✓ Jadi, penyelesaiannya adalah  $x = \boxed{\phantom{0}}$

## Soal 5

Tentukan nilai  $x$  dari:  $(x + 2)^{x+1} = (x + 2)^4$

### **Penyelesaian:**

Karena basis sama dan  $x + 2 > 0$ , maka pangkatnya harus sama:

$$\boxed{\phantom{00}} = \boxed{\phantom{00}}$$

$$x = \boxed{\phantom{00}}$$

✓ Jadi, nilai  $x = \boxed{\phantom{00}}$

## Soal 6

Tentukan nilai  $x$  dari:  $(x - 1)^{2x-3} = (x - 1)^5$

### **Penyelesaian:**

Syarat:  $x - 1 > 0 \Rightarrow x > 1$

Karena basisnya sama dan positif:

$$\boxed{\phantom{00}} = \boxed{\phantom{00}}$$

$$\boxed{\phantom{00}} = \boxed{\phantom{00}}$$

$$x = \boxed{\phantom{00}}$$

✓ Jadi, nilai  $x = \boxed{\phantom{00}}$  (memenuhi  $x > 1$ ).

## Soal 7

Tentukan nilai  $x$  dari persamaan:  $2^{2x} - 2^{x+1} = 0$ !

**Penyelesaian:**

$$2^{2x} - 2^{x+1} = 0$$

$$2^{2x} - \boxed{\phantom{00}}^{\boxed{\phantom{00}}} \cdot \boxed{\phantom{00}}^{\boxed{\phantom{00}}} = 0$$

$$(2^x)^{\boxed{\phantom{00}}} - \boxed{\phantom{00}}^{\boxed{\phantom{00}}} \cdot 2^x = 0$$

Misalkan  $y = 2^x$ :

$$\boxed{\phantom{00}}^{\boxed{\phantom{00}}} - \boxed{\phantom{00}} = 0$$

$$\boxed{\phantom{00}} (\boxed{\phantom{00}}) = 0$$

$$y = \boxed{\phantom{00}} \text{ atau } y = \boxed{\phantom{00}}$$

## Soal 7

Karena  $2^x > 0$ , maka  $y = 2$

$$\boxed{\phantom{00}}^{\boxed{\phantom{00}}} = 2 \Rightarrow x = \boxed{\phantom{00}}$$

✓ Jadi, penyelesaiannya adalah  $x = \boxed{\phantom{00}}$