

## 5 soal un matematika sma ipa 2017 dan pembahasannya

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#### 5 Soal Ujian Nasional Matematika SMA IPA 2017 dan Pembahasannya

Ujian Nasional (UN) merupakan salah satu penentu kelulusan siswa SMA. Salah satu mata pelajaran yang diujikan adalah Matematika. Berikut adalah lima soal UN Matematika SMA IPA beserta pembahasannya dari tahun 2017:

**Soal 1:** Jika  $f(x) = 2x^2 - 5x + 3$ , maka nilai  $f(2)$  adalah....

**Pembahasan:** Menggantikan nilai  $x$  dengan 2 pada fungsi  $f(x)$ :  $f(2) = 2(2)^2 - 5(2) + 3$   
 $f(2) = 2(4) - 5(2) + 3$   
 $f(2) = 8 - 10 + 3 = 1$

**Soal 2:** Diketahui barisan aritmatika dengan  $U_1 = 5$  dan  $b = 3$ . Suku ke-10 barisan tersebut adalah....

**Pembahasan:** Rumus suku ke- $n$  barisan aritmatika:  $U_n = U_1 + (n - 1)b$   
Menggantikan nilai  $U_1$ ,  $b$ , dan  $n = 10$ :  $U_{10} = 5 + (10 - 1)3$   
 $U_{10} = 5 + 9(3)$   
 $U_{10} = 5 + 27 = 32$

**Soal 3:** Sebuah kerucut memiliki volume  $36\pi \text{ cm}^3$ . Jika jari-jari alas kerucut diperbesar 2 kali dan tingginya diperbesar 3 kali, maka volume kerucut yang baru adalah....

**Pembahasan:** Rumus volume kerucut:  $V = \frac{1}{3}\pi r^2 t$  Jika jari-jari alas diperbesar 2 kali dan tinggi diperbesar 3 kali, maka volume baru:  $V' = \frac{1}{3}\pi (2r)^2 (3t) = \frac{1}{3}\pi (4r^2)(3t)$   
 $V' = 4\pi r^2 t$  Karena volume semula  $36\pi \text{ cm}^3$ , maka:  $36\pi = \frac{1}{3}\pi r^2 t$   
 $r^2 t = 36$  Maka, volume kerucut yang baru:  $V' = 4\pi(36) = 144\pi \text{ cm}^3$

**Soal 4:** Grafik fungsi  $y = f(x)$  adalah sebagai berikut:

[Image of a graph with a parabola]

Nama sumbu simetri dari grafik tersebut adalah....

**Pembahasan:** Sumbu simetri dari suatu grafik parabola dengan persamaan  $y = ax^2 + bx + c$  adalah  $x = -b/2a$ . Dari grafik tersebut, didapatkan:  $a = 1$   $b = 0$  Maka, sumbu simetri:  $x = -0/2(1) = 0$

**Soal 5:** Diketahui matriks  $A = \begin{pmatrix} 3 & 1 \end{pmatrix}$  dan  $B = \begin{pmatrix} 2 & -1 \end{pmatrix}$ . Maka,  $A - B$  adalah....

**Pembahasan:** Operasi pengurangan matriks dengan elemen yang sesuai:  $A - B = \begin{pmatrix} 3 & 1 \end{pmatrix} - \begin{pmatrix} 2 & -1 \end{pmatrix} = \begin{pmatrix} 3-2 & 1-(-1) \end{pmatrix} = \begin{pmatrix} 1 & 2 \end{pmatrix}$

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