KISI-KISI PTS (TURUNAN FUNGSI ALJABAR)

Hari, tanggal: _____

Nama Siswa: _____

Kelas: 11 IPA / 11 IPS

Mata pelajaran: MATEMATIKA

1. Diketahui f(x) = 9. Tentukan f'(20) = ….
2. Diberikan f(x) = 7 – 3x. Tentukan f'(9)= ….
3. Jika g(x) = $2x^2$ – 6x + 7 maka turunan pertama dari g'(3) = ….
4. Diberikan f(n) = 3n + p. Jika f(4) = 15 maka f'(-5) = ….
5. Diketahui g(x) = (x^3 + x^2 – 3)(2x - x^2). Tentukan g'(0) = ….
6. Diketahui f(x) = $\frac{2x^2+3x+5}{x^3-4x}$. Tentukan f'(1)
7. Diberikan g(x) = $\sqrt{x^3}$. Tentukan g'(1) = ….
8. Jika h(x) = $(2x^2 + 3x + 5)^3$. Tentukan h'(1) = ….

JAWABAN

1. f'(x) = 0. Maka f'(20) = 0
2. f'(x) = 0 – 3 = -3. Maka f'(9) = -3
3. g'(x) = 4x – 6. Maka g'(3) = 4.3 – 6 = 12 – 6 = 6
4. f(4) = 3.4 + p

   15 = 12 + p

   15 – 12 = p

   3 = p

   Maka fungsi f(n) = 3n + 3. Sehingga, f'(n) = 3, akibatnya f'(-5) = 3
5. Misalkan:

   u(x) = x^3 + x^2 – 3 maka u'(x) = $3x^2$ + 2x

   v(x) = 2x - x^2 maka v'(x) = 2 – 2x

   g'(x) = u'(x).v(x) + u(x).v'(x)

   = (3x^2 + 2x)(2x - x^2) + (x^3 + x^2 – 3)(2 – 2x)

   g'(0) = $(3.0^2 + 2.0)(2.0 - 0^2) + (0^3 + 0^2 - 3)(2 - 2.0)$

   $= (2.0 + 0)(0 - 0) + (0 + 0 - 3)(2 - 0)$

   $= (0)(0) + (-3)(2)$

   $= 0 + (-6)$

   $= -6$
6. Misalkan:

   u(x) = $2x^2 + 3x + 5$ maka u'(x) = 4x + 3

   v(x) = $x^3 - 4x$ maka v'(x) = $3x^2 - 4$

   f'(x) = $\frac{u'(x).v(x) - u(x).v'(x)}{[v(x)]^2}$

   = $\frac{(4x+3)(x^3-4x)-(2x^2+3x+5)(3x^2-4)}{(x^3-4x)^2}$

   f'(1) = $\frac{(4.1+3)(1^3-4.1)-(2.(1)^2+3.1+5)(3.(1)^2-4)}{(1^3-4.1)^2}$

   = $\frac{(4+3)(1-4)-(2.1+3+5)(3..1-4)}{(1-4)^2}$

   = $\frac{(7)(-3)-(2+3+5)(3.-4)}{(-3)^2}$

$= \frac{-21-(10)(-1)}{(-3)^2}$

$= \frac{-21-(-10)}{-27}$

$= \frac{-21+10}{-27}$

$= \frac{-11}{-27}$

$= \frac{11}{27}$

7. g(x) = $\sqrt{x^3} = x^{\frac{3}{2}}$

   g'(x) = $\frac{3}{2}.1x^{\frac{3}{2}-1} = \frac{3}{2}x^{\frac{1}{2}} = \frac{3}{2}\sqrt{x}$

   g'(1) = $\frac{3}{2}\sqrt{1} = \frac{3}{2}$

8. Misalkan:

   u(x) = $2x^2 + 3x + 5$ maka u'(x) = 4x + 3

   w(u) = u^3 maka w'(u) = $3.1u^2 = 3u^2$

   h'(x) = w'(u). u'(x) = $(3u^2)(4x + 3) = (3(2x^2 + 3x + 5)^2)(4x + 3)$

   h'(1) = $(3(2(1)^2 + 3.1 + 5)^2 (4.1 + 3)$

   = (3(2.1 + 3 + 5)(4 + 3)

   = (3(2 + 8)(7)

   = (3(10)(7)

   = 30.7

   = 210