**Задача 11**. Найти производную.

11.1. 

lny= 1/2\*ln2arctgx

y'= (arctgx)1/2\*ln(arctgx)(lnarctgx)/(arctgx\*(1+x2))

11.2. 

lny= ln2sin√x

y'= ((sin√x)lnsin√x\*ctg√x\*lnsin√x)/√x

11.3. 

lny= 5exlnsinx

y'= (sinx)5e^x(5exlnsinx+5exctgx)

11.4. 

lny= exlnarcsinx

y'= (arcsinx)e^x(exlnarcsinx+ex/√(1-x2))

11.5. 

lny= 3xlnlnx

y'= (lnx)3^x(3xln3lnlnx+3x/(xlnx))

11.6. 

lny= arcsinxlnx

y'= xarcsinx(lnx/√(1-x2)+arcsinx/x)

11.7. 

lny= 2exlnctg3x

y'= 2(ctg3x)2e^x(exlnctg3x-3ex/(ctg3x\*sin23x))

11.8. 

lny= etgxlnx

y'= xe^tgx((etgxlnx)/cos2x+etgx/x)

11.9. 

lny= 4exlntgx

y'= (tgx)4e^x(4exlntgx+ 4ex ) = (tgx)4e^x(4exlntgx+ 4ex ) =

tgxcos2x sinxcosx

11.10. 

lny=exlncos5x

y'= (cos5x)e^x(exlnco5x-5exsin5x)= ex(cos5x)e^x(lncos5x-5tg5x)

cos5x

11.11. 

lny= 8ln2(xsinx)

y'= 16(xsinx)8ln(xsinx)ln(xsinx)(sinx+xcosx)

11.12. 

lny= chxln(x-5)

y'= (x-5)chx(shxln(x-5)+chx/(x-5))

11.13. 

lny= tgxln(x3+4)

y'= (x3+4)tgx(ln(x3+4)/cos2x+(3x2tgx)/(x3+4))

11.14. 

lny= sinx3lnx

y'= xsinx^3(3x2cosx3lnx+(sinx3)/x)

11.15. 

lny= shxln(x2-1)

y'= (x2-1)shx(chxln(x2-1)+(2xshx)/(x2-1))

11.16. 

lny= ctgxln(x4+5)

y'= (x4+5)ctgx(-(ln(x4+5))/sin2x+(4x3ctgx)/(x4+5))

11.17. 

lny= 5x/2\*lnsinx

y'= (sinx)5x/2(2,5lnsinx+(5xcosx)/sinx)= (sinx)5x/2(2,5lnsinx+5xctgx)

11.18. 

lny= cosxln(x2+1)

y'= (x2+1)cosx(-sinxln(x2+1)+(2xcosx)/(x2+1))

11.19. 

lny= x19ln19+19lnx

y'= 19x^19x19(19x18ln19+19/x)

11.20. 

lny= 3xlnx+xln2

y'= x3^x2x(3xln3lnx+3x/x+ln2)

11.21. 

lny= e1/xlnsin√x

y'= (sin√x)e^1/x(-(e1/xlnsin√x)/x2+(e1/xcos√x)/(2√xsin√x))=

= e1/x (sin√x)e^1/x((ctg√x)/(2√x)-(lnsin√x)/x2)

11.22. 

lny= ectgxlnx

y'= xe^ctgx(-(ectgxlnx)/sin2x+ectgx/x)= ectgxxe^ctgx(1/x-(lnx)/sin2x)

11.23. 

lny= ecosxlnx

y'= xe^cosx(-ecosxsinxlnx+ecosx/x)= ecosxxe^cosx(1/x-sinxlnx)

11.24. 

11.25. 

lny= esinxlnx

y'= xe^sinx(esinxcosxlnx+esinx/x)= ecosxxe^cosx(cosxlnx+1/x)

11.26. 

lny= ln2(tgx)/4

y'= (tgx)ln(tgx)/4/\*(ln(tgx))/(2cos2x)

11.27. 

lny= earctgxlnx

y'= xe^arctgx((earctgxlnx)/(1+x2)+ earctgx/x)

11.28. 

lny= thxln(x8+1)

y'= (x8+1)thx((ln(x8+1))/ch2x+(8x7thx)/(x8+1))

11.29. 

lny= 29xlnx+xln29

y'= x29^x29x(29xln29lnx+29x/x+ln29)

11.30. 

lny= ln2(cos2x)/4

y'= (cos2x)ln(cos2x)/4(-ln(cos2x)sin2x)/cos2x

11.31. 

lny= exlnx+9lnx

y'= xe^xx9(exlnx+ex/x+9/x)