

Εργαστήριο 3 - Απαντήσεις

In[1]:= **Log[3, 6561]**

Out[1]= 8

In[2]:= $\sqrt{\text{Abs}[-9x^2]}$

Out[2]= 3 Abs[x]

In[3]:= **Abs[4 - 2 i]**

Out[3]= $2\sqrt{5}$

In[4]:= $a = \sqrt[3]{\frac{\text{Cos}\left[\left(\frac{\pi}{4}\right)^3\right]}{\text{Sin}\left[\frac{1}{2}\right]}}$

Out[4]= $\frac{\text{Csc}\left[\frac{1}{2}\right]^{1/3}}{\sqrt{2}}$

In[5]:= **b = e^{√n}**

Out[5]= e^{√n}

In[6]:= **a + b**

Out[6]= $e^{\sqrt{n}} + \frac{\text{Csc}\left[\frac{1}{2}\right]^{1/3}}{\sqrt{2}}$

In[7]:= **N[%]**

Out[7]= 6.78874

In[8]:= **Clear[a]**

In[9]:= $\int \frac{\text{Sin}[a * x]}{\text{Cos}[a * x]^3} dx$

Out[9]= $\frac{\text{Sec}[a x]^2}{2 a}$

In[10]:= **Simplify** $\left[\frac{\sqrt{\frac{2-x}{3+x}}}{\sqrt{2-x}}\right]$

Out[10]= $\frac{\sqrt{\frac{2-x}{3+x}}}{\sqrt{2-x}}$

In[11]:= **FullSimplify[%]**

Out[11]= $\sqrt{\frac{1}{3+x}}$

In[12]:= **Simplify[Log[x - x²] - Log[x]]**

Out[12]= -Log[x] + Log[-(-1 + x) x]

In[13]:= **FullSimplify** [%]

Out[13]= $\text{Log}[1 - x]$

In[14]:= **D** [$\sqrt{x + \sqrt{x}}$, x]

Out[14]=
$$\frac{1 + \frac{1}{2\sqrt{x}}}{2\sqrt{\sqrt{x} + x}}$$

In[15]:= **D** [%, x]

Out[15]=
$$-\frac{\left(1 + \frac{1}{2\sqrt{x}}\right)^2}{4(\sqrt{x} + x)^{3/2}} - \frac{1}{8x^{3/2}\sqrt{\sqrt{x} + x}}$$

In[16]:= **D** [$\sqrt{x + \sqrt{x}}$, { x , 2}]

Out[16]=
$$-\frac{\left(1 + \frac{1}{2\sqrt{x}}\right)^2}{4(\sqrt{x} + x)^{3/2}} - \frac{1}{8x^{3/2}\sqrt{\sqrt{x} + x}}$$

In[17]:= **Simplify** [%]

Out[17]=
$$\frac{-3 - 6\sqrt{x} - 4x}{16(1 + \sqrt{x})x^{3/2}\sqrt{\sqrt{x} + x}}$$

In[18]:= **FullSimplify** [%]

Out[18]=
$$-\frac{\sqrt{\sqrt{x} + x}(3 + 6\sqrt{x} + 4x)}{16(x + x^{3/2})^2}$$

In[19]:= **Simplify** [$\frac{x^2 - 5x + 6}{x - 3}$]

Out[19]= $-2 + x$

In[20]:= **Simplify** [$\frac{2\text{Sin}[a] - \text{Sin}[2a]}{2\text{Sin}[a] + \text{Sin}[2a]}$]

Out[20]= $\text{Tan}\left[\frac{a}{2}\right]^2$

In[21]:= **Simplify** [$\frac{4\text{Cos}[a]^2}{\text{Cot}\left[\frac{a}{2}\right] - \text{Tan}\left[\frac{a}{2}\right]}$]

Out[21]= $\text{Sin}[2a]$

In[22]:= **Clear** [b]

In[23]:= **Simplify** [$\text{Sin}[a + b]^2 + \text{Cos}[a - b]^2 - 1$]

Out[23]= $\text{Sin}[2a]\text{Sin}[2b]$

In[24]:= **Simplify** [$\text{Sin}[a]^2 + \text{Sin}[b]^2 + \text{Sin}[c]^2 + \text{Sin}[a + b + c]^2 - 2$]

Out[24]= $-2\text{Cos}[a + b]\text{Cos}[a + c]\text{Cos}[b + c]$

In[25]:= **Simplify** [$x^3 - 3x^2y + 3xy^2 - y^3 + 3x^2z - 6xyz + 3y^2z + 3xz^2 - 3yz^2 + z^3$]

Out[25]= $(x - y + z)^3$