

Rechnen und Darstellen mit dem neuen CASIO-ClassPad330

Aufgaben und Inhalte der Videoclips:

vgl. Internet:

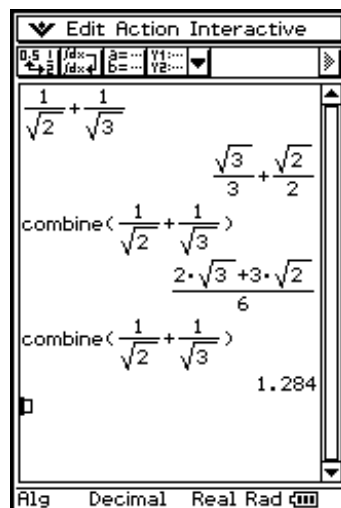
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|--|------------------------|
| 1. http://www2.htw-dresden.de/~paditz/images/CP_Main.avi | (Numerisches Rechnen) |
| 2. http://www2.htw-dresden.de/~paditz/images/Sonderzeichen.avi | (Num./Symbol. Rechnen) |
| 3. http://www2.htw-dresden.de/~paditz/images/CAS4.avi | (Symbolisches Rechnen) |
| 4. http://www2.htw-dresden.de/~paditz/images/Graph_Tabelle5.avi | (2D/3D-Grafik) |
| 5. http://www2.htw-dresden.de/~paditz/images/geometrie6.avi | (Dynamische Geometrie) |
| 6. http://www2.htw-dresden.de/~paditz/images/eActivity.avi | (e-Activity) |

1. Numerisches Rechnen im Hauptanwendungsmenü:

Eingabe über das virtuelle 2D-Keyboard:

$$\frac{1}{\sqrt{2}} + \frac{1}{\sqrt{3}} = \frac{\sqrt{3}}{3} + \frac{\sqrt{2}}{2}$$

$$\text{combine}\left(\frac{1}{\sqrt{2}} + \frac{1}{\sqrt{3}}\right) = \frac{2 \times \sqrt{3} + 3 \times \sqrt{2}}{6} = 1.284$$



2. Numerisches und symbolisches Rechnen im Hauptanwendungsmenü:

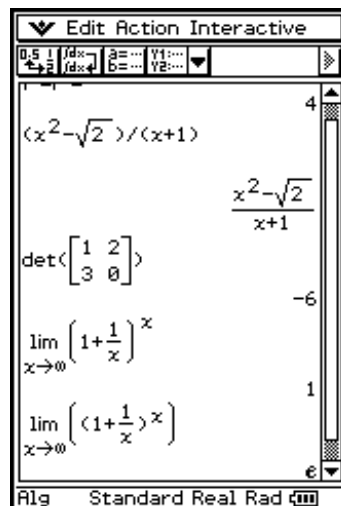
Eingabe über das virtuelle 2D-Keyboard:

$$|-2| + 2 = 4$$

$$\frac{x^2 - \sqrt{2}}{x+1} = \frac{x^2 - \sqrt{2}}{x+1}$$

$$\det\left(\begin{bmatrix} 1 & 2 \\ 3 & 0 \end{bmatrix}\right) = -6$$

$$\lim_{x \rightarrow \infty} \left(1 + \frac{1}{x}\right)^x = e$$

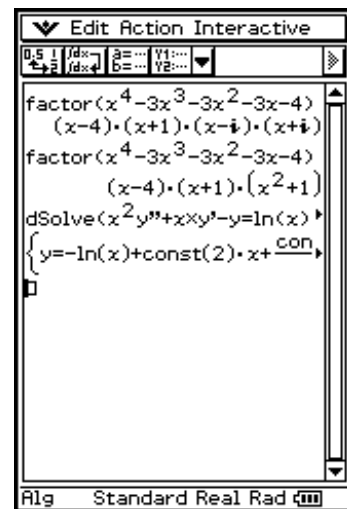


3. Symbolisches Rechnen im Hauptanwendungsmenü:

Eingabe über das virtuelle 2D-Keyboard:

$$\text{factor}(x^4 - 3x^3 - 3x^2 - 3x - 4) = (x-4)(x+1)(x-i)(x+i)$$

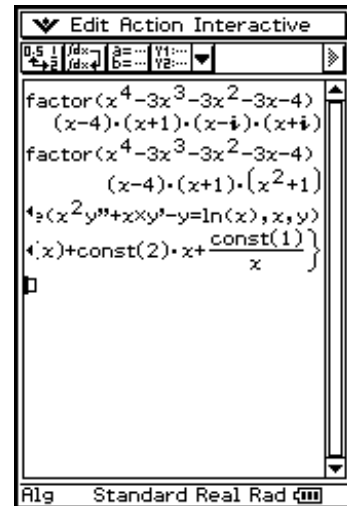
$$\text{factor}(x^4 - 3x^3 - 3x^2 - 3x - 4) = (x-4)(x+1)(x^2 + 1)$$



$$\text{dSolve}(x^2 y'' + x y' - y = \ln(x), x, y) =$$

$$\left\{ y = -\ln(x) + \text{const}(2) \times x + \frac{\text{const}(1)}{x} \right\}$$

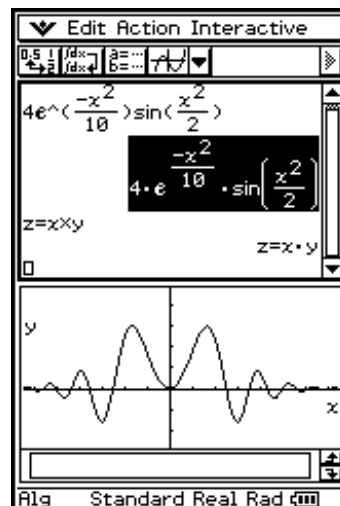
Eulersche Differenzialgleichung 2.Ordnung, inhomogen.



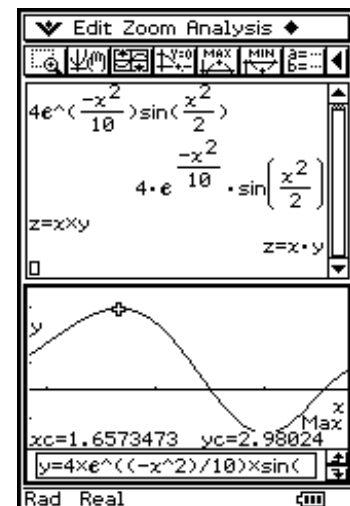
4. Formeltermen im Hauptanwendungsmenü in ein Grafikfenster „ziehen“:

Eingabe der Formeltermen und mit Drag & Drop im 2D- bzw. 3D-Grafikfenster darstellen :

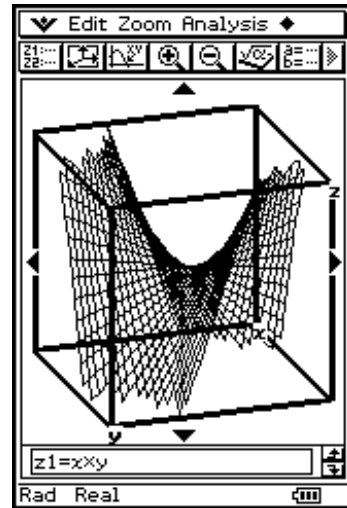
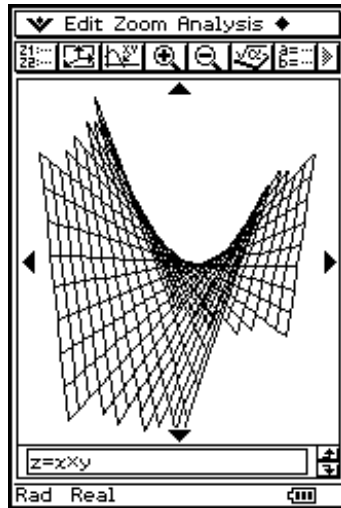
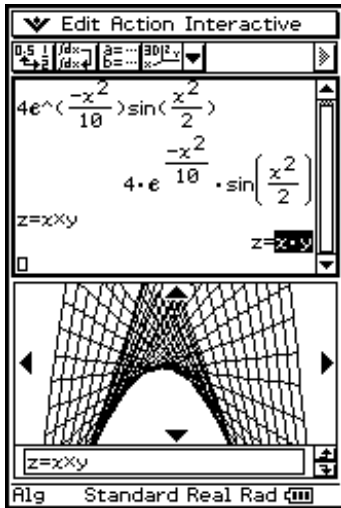
$$4 \times \exp\left(\frac{-x^2}{10}\right) \times \sin\left(\frac{x^2}{2}\right) \text{ eingeben,}$$



$$z = x \times y \text{ eingeben.}$$

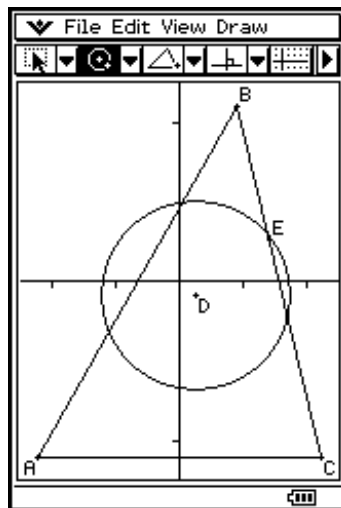
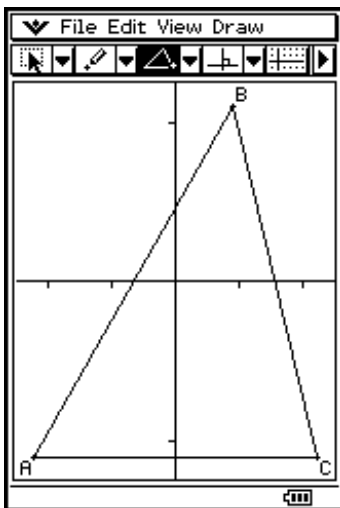


3D-Grafiken:

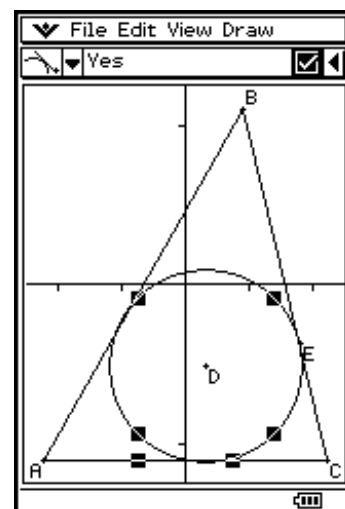
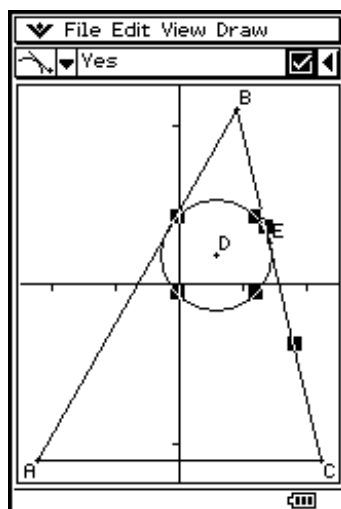
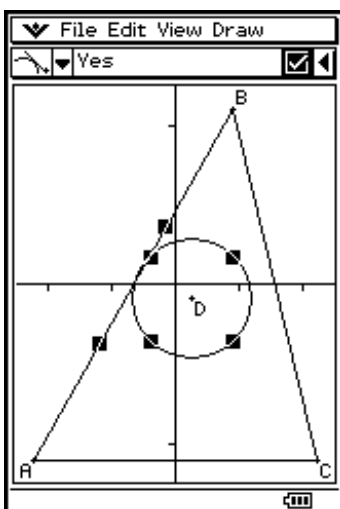


5. Dynamische Geometrie:

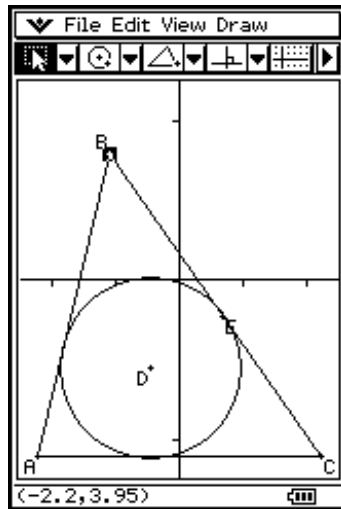
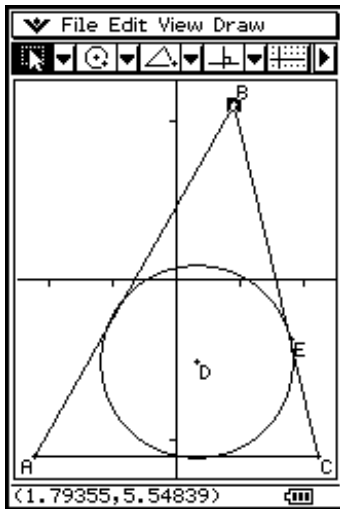
Dreieck mit Inkreis zeichnen und die Zeichnung dynamisch verändern:



Die Figuren bereitstellen



Die Figuren schrittweise anpassen



Drag & Drop mit Punkt B

6. e-activity:

Entsprechend der Anleitung aus der Formel heraus ein Rhombus konstruieren:

File Edit Insert Action

Rhombus:
Exploring the equation of a rhombus graphically.

Rhombus

General form of a rhombus:

$$d|x-h|+e|y-k|=f$$

Example 1:
Graph $2|x-5|+5|y-2|=20$

Hint:
Solve for y two ways,
a. For $(y-2)>0$

Alg Standard Cplx Rad

File Edit Insert Action

Hint:
Solve for y two ways,
a. For $(y-2)>0$
b. For $(y-2)<0$
and then graph the equations.

$$\text{solve}(2|x-5|+5|y-2|=20, y)$$

$$\left\{ y = \frac{2 \cdot |x-5|}{5} - 2, y = \frac{-2 \cdot |x-5|}{5} \right.$$

The Graph

Use the Geometry strip above to graph:

Alg Standard Cplx Rad

File Edit Insert Action

$$\left\{ y = \frac{2 \cdot |x-5|}{5} - 2, y = \frac{-2 \cdot |x-5|}{5} \right.$$

The Graph

Use the Geometry strip above to graph:

$$4|x+3|+3|y+5|=12$$

Solution

$$\text{solve}(4|x+3|+3|y+5|=12, y)$$

$$\left\{ y = \frac{4 \cdot |x+3|}{3} - 9, y = \frac{-4 \cdot |x+3|}{3} \right.$$

Solution

Alg Standard Cplx Rad

Der Anleitungstext der e-activity

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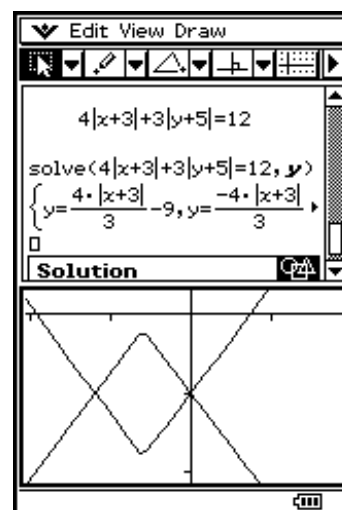
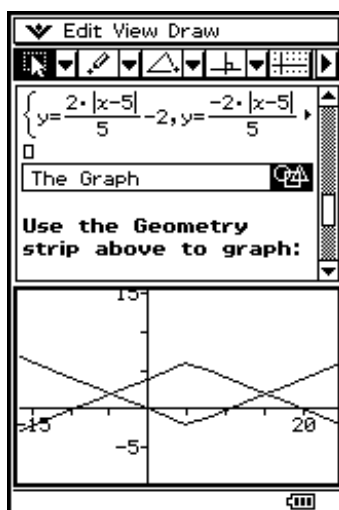
Rhombus

General form of a rhombus:

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Edit View Draw



Die geöffneten Grafikfenster innerhalb der e-activity