

ClassPad Basic Skills



Main

- Check general settings at bottom of screen: Alg - Standard/Decimal - Real - Deg.
- Use variables from the VAR menu.

M1. Calculate (a) $230 \div 12$ (b) 3^{50} (c) $\sqrt{12}$

M2. Expand: *use Action/Transformation/expand*

(a) $(2x + 3)(x - 7)$ (b) $(5x - 4)^2$

M3. Factorise: *use Action/Transformation/factor*

(a) $x^2 - 2x - 24$ (b) $12x^2 + 7x - 10$ (c) 60

M4. Simplify: *use Action/Transformation/simplify*

(a) $(x + y)^2 - (x - y)^2$ (b) $\left(\frac{x^2y}{xy^3}\right)^{-2}$

M5. Evaluate these expressions: *Substitute using | from the OPTN menu*

(a) $x^2 - 2x - 24$ when $x = -3.6$ (b) $(a^2 - 5b)^3$ when $a = 2.2$ and $b = \frac{1}{3}$

M6. Solve the following for x : *use Advanced/solve*

(a) $2(2x + 3) = 5 - (3x - 2)$ (b) $2x^2 - 9x = 35$ (c) $3^x + 4 = 85$ (d) $3 - 4x > 9$

M7. Re-arrange for y : *use Advanced/solve*

(a) $3x + 2y = 24$ (b) $\frac{3x - 2y}{4} = x - y + 1$

M8. Solve for x and y the simultaneous equations $3x + 2y = 24$ and $y = x + 7$: *Simultaneous solver - 2D menu*

M9. Graph $y = x^2 - 2x - 24$ and $3x + 2y = 24$ and hence find their point(s) of intersection: *Use split screen*

System

- ClassPad Name.
- Power Properties.
- Use Reset to fix problems (and Initialize if that doesn't work).

Geometry

- Draw a triangle to scale and find all sides, angles and area.
- Plot points to solve coordinate geometry problems.

G1. Determine the area of a right-triangle with a hypotenuse of 35cm and one angle of 35° .

G2. Find the size of the smallest angle in a triangle with sides 17cm, 24cm and 29cm.

G3. Plot the two points A(1, 1) and B(-2, 4).

Hence find the distance AB and the equation of the straight line through A and B.

Menu

- Bring 'Sequence' into top half of Menu.

eActivity

- Store and save common formulas using NumSolve strips.

E1. Use the simple interest formula $I = \frac{PRT}{100}$ to find

- (a) I when $P=\$200$, $R=8.5\%$ and $T=0.5$ years (b) R when $I=\$230$, $P=\$5400$ and $T=1.5$ years

E2. Use the Pythagorean relationship $a^2 + b^2 = c^2$ to find

- (a) c when $a=15$ and $b=20$ (b) b when $a=17$ and $c=29$

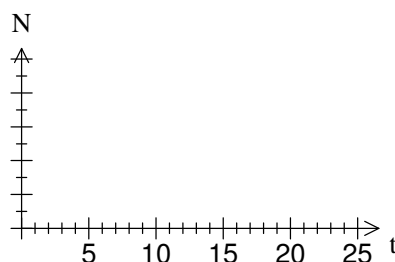
Graph and Table

- Use auto-scale sensibly by setting x-min and x-max first.
- Use Root, Max, Min, y-Intercept, Intersect, y-cal and x-cal from Analysis, G-Solve menu.

GT1. The weeds on the school oval were treated with a slow-acting poison, and the number of weeds remaining was checked for the next 25 days. After t days the number of weeds present [$N(t)$, in thousands] was found to be given by

$$N(t) = 2t^3 - 75t^2 + 600t + 2500$$

Sketch a graph to show how the number of weeds varies, indicating clearly any max or min values.



GT2. The total journey time (t , in minutes) is given by $t = \frac{\sqrt{1+x^2}}{6} + \frac{2-x}{10}$. Calculate the journey times for $x = 0, 0.5, 1, 1.5$ and 2 , to 4 decimal places. Find the value of x , correct to 1 decimal place, which gives the minimum journey time.

Statistics - type carefully and slowly!

ST1. Calculate the mean and standard deviation for this frequency distribution.

Age	12	13	14	15	16
Frequency	2	4	9	6	5

ST2. Find and use the linear regression line y on x to predict y when $x=52$ using the data below:

x	29	35	47	50	59
y	51	65	90	98	121

ST3. Calculate normal probabilities and view normal graphs: use *Calc, Distribution, Normal CD - Inv. Distribution, Inverse Normal CD*. If $X \sim N(62, 14)$ then find (a) $P(65 < X < 75)$ (b) k , if $P(X > k) = 0.1$

Sequence - choose type first

S1. Find the 20th term of the sequence given by $T_{n+1} = 1.2T_n$, where $T_1 = 12$, correct to 2 decimal places.

S2. Find which is the first negative term of the sequence $T_{n+1} = 1.08T_n - 400$, where $T_0 = 5000$.

S3. Find the 18th Fibonacci number, where $F_{n+2} = F_{n+1} + F_n$ and $F_1 = 1, F_2 = 1$.

Spreadsheet - remember two types of cell selection

- Repeat sequence problems.

Finance - Use sparingly as no working generated

F1. Calculate the monthly repayment for a loan of \$20 000 at 11% over 5 years.