Linear

$y = mx + c$

Quadratic

$y = a(x-b)^2 + c$ Turning point (b, c)

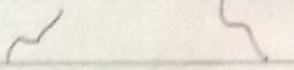
$a > 0$ $a < 0$

∪ ∩

Cubic

$y = a(x-b)^3 + c$ Inflection point (b, c)

$a > 0$ $a < 0$

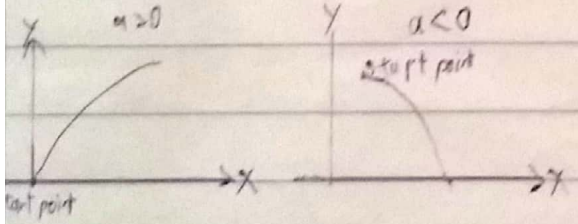


Surd

$y = a(x-b)^{\frac{1}{2}} + c$

$y = a\sqrt{x-b} + c$

start point (b, c)



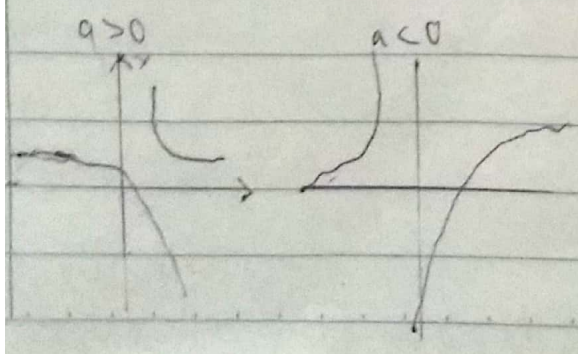
Hyperbola

$y = a(x-b)^{-1} + c$

$y = \frac{a}{x-b} + c$

Asymptotes $x = b$ (vertical) Never touches Asymptotes ever

$y = c$ (Horizontal)



Absolute (L, inverse) (modulus)

$y = a|x-b| + c$

v-point $= (b, c)$

$a > 0$ $a < 0$

∨ ∧

To find a, sub x & y given coords

Quartic

$y = a(x-h)^4 + k$

Transformation [$y=f(x)$]

① Dilation

a) $y=kf(x)$

Dilation by factor k parallel to y-axis

b) $y=f(kx)$

Dilation by factor $\frac{1}{k}$ parallel to x-axis

② Translation

a) $y=f(x)\pm k$

Translation along positive y-axis by k-units

b) $y=f(x\pm k)$

Translation along negative x-axis by k-units

③ Reflection

a) $y=-f(x)$

Reflection about the x-axis

b) $y=f(-x)$

Reflection about the y-axis

Trick transformation

① Trick 1

According to sequence in equation from left to right and &/or from top to bottom

$y=-2(x+1)^2-1$

- Reflection in x-axis
- Dilation factor of 2 parallel to y-axis
- Translation of 1 unit in the negative x-direction
- Translation of 1 unit in the negative y-direction

② Trick 2

Equation expanded factorised

$y=2x+2$

$=2(x+1)$

- Dilation by factor 2 parallel to x axis
- Translation left along negative by 1 unit in negative x direction

③ Trick 3

The unknown comes first follow on by constant

$y=\sqrt{9-x}+3$

$y=\sqrt{-(x-9)}+3$

$=\sqrt{-(x-9)}+3$

- Reflection by y-axis
- Translation by 3 units in positive x-direction
- Translation by 9 units in positive y-direction

$y=\sqrt{x}$

$y=-\sqrt{x}$ (reflect y-axis)

$y=\sqrt{-x}$ (reflect x-axis)

DATE ______ NO ______

Assignment of Bridge

Semi: [illegible]

Own material

First paper consist all the calculation

Description — Label every ~~[illegible]~~ thing on bridge

Design — Each polygon should consits of an equation

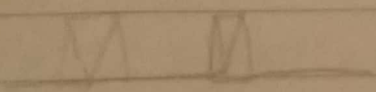
Describe
Write in detail [illegible]
manner, why use this? [illegible]

Write or type, con[illegible] point

Most consists of transformation

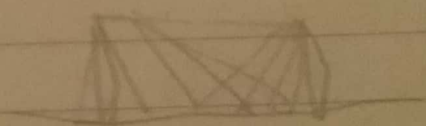
Ex:

[illegible] a



More complex
Parabola

Calculation explaination ~~[illegible]~~



L1 Fun Cubic

Quadratic

Linear

DATE: ____________ NO: ____________

Domain

Range?

Everything up till

before transformation