1 94.1.1 Commands

```
2pt+3.5pt = 5.5 = 5.5
   sin(.5*pi r)*60 = 59.99908 = 59.99908
   1.234e+4 = 12340.0 = 12340.0
   010 = 010 = 8
   0xA = 10 = 10
   0XB = 11 = 11
   0b10 = 2 = 2
   0B101 = 5 = 5
```

2 92.2 Operators

```
1+2 = 3.0 = 3.0
   1-2 = -1.0 = -1.0
   -2 = -2.0 = -2.0
   1*2 = 2.0 = 2.0
   1/2 = 0.5 = 0.5
   2^3 = 8.0 = 8.0
   4!  = 24.0 = 24.0
   1r = 57.29578 = 57.29578
   pi r = 179.99962 = 179.99962
   1 ?  2 :  3 = 2 = 2
   2 == 2 = 1 = 1
   2 == 1 = 0 = 0
   (1+2)*3 = 9.0 = 9.0
   sin(30*10) = -0.86603 = -0.86603
   mod(72,3) = 0.0 = 0.0
   sin 30 = 0.5 = 0.5
   sin(30) = 0.5 = 0.5
   sin 30*10 = 5.0 = 5.0
   sin(30)*10 = 5.0 = 5.0
   5 is smaller than 7.
   5 is smaller than 7.
   7 is Bigger than 5.
   7 is Bigger than 5
```

3 92.3 Functions

3.1 92.3.1 Basic arithmetic functions

```
add(75,6) = 81.0 = 81.0
   subtract(75,6) = 69.0 = 69.0
   neg(50) = -50.0 = -50.0
   multiply(75,6) = 450.0 = 450.0
```

```
   divide(75,6) = 12.5 = 12.5
   div(75,9) = 8 = 8
   factorial(5) = 120.0 = 120.0
   sqrt(10) = 3.16227 = 3.16227
   sqrt(8765.432) = 93.62388 = 93.62388
   pow(2,7) = 128.0 = 128.0
   e^2 - e^-2 = 3.62685 = 3.62685
   exp(1) = 2.71825 = 2.71825
   exp(2.34) = 10.38083 = 10.38083
   ln(10) = 2.30257 = 2.30257
   ln(exp(5)) = 4.99997 = 4.99997
   log10(100) = 1.99997 = 1.99997
   log2(128) = 6.99994 = 6.99994
   abs(-5) = 5.0 = 5.0
   -abs(4*-3) = -12.0 = -12.0
   mod(20,6) = 2.0 = 2.0
   mod(-100,30) = -10.0 = -10.0
   Mod(-100,30) = 20.0 = 20.0
   sign(-5) = -1 = -1
   sign(0) = 0 = 0
   sign(5) = 1 = 1
```

3.2 94.3.2 Rounding functions

```
round(32.5/17) = 2.0 = 2.0
   round(398/12) = 33.0 = 33.0
   floor(32.5/17) = 1.0 = 1.0
   floor(398/12) = 33.0 = 33.0
   floor(-398/12) = -34.0 = -34.0
   ceil(32.5/17) = 2.0 = 2.0
   ceil(398/12) = 34.0 = 34.0
   ceil(-398/12) = -33.0 = -33.0
   int(32.5/17) = 1 = 1
   frac(32.5/17) = 0.91176 = 0.91176
   int(-32.5/17) = -1 = -1
   frac(-32.5/17) = 0.91176 = 0.91176
   real(4) = 4.0 = 4.0
```

3.3 94.3.3 Integer arithmetic functions

```
gcd(42,56) = 14 = 14
   gcd(24,34) = 2 = 2
   gcd(42.1,56.1) = 0 = 0
   gcd(-42,-56) = 14 = 14
   gcd(-42,0) = 42 = 42
   isodd(2) = 0 = 0
```

```
   isodd(3) = 1 = 1
   iseven(2) = 1 = 1
   iseven(3) = 0 = 0
   isprime(1) = 0 = 0
   isprime(2) = 1 = 1
   isprime(31) = 1 = 1
   isprime(64) = 0 = 0
```

3.4 94.3.4 Trigonometric functions

```
pi = 3.141592654 = 3.141592654
   pi r = 179.99962 = 179.99962
   rad(90) = 1.57079 = 1.57079
   deg(3*pi/2) = 269.999 = 269.999
   sin(60) = 0.86603 = 0.86603
   sin(pi/3 r) = 0.86601 = 0.86601
   cos(60) = 0.5 = 0.5
   cos(pi/3 r) = 0.49998 = 0.49998
   tan(45) = 1.00005 = 1.00005
   tan(2*pi/8 r) = 1.0 = 1.0
   sec(45) = 1.41429 = 1.41429
   cosec(30) = 2.0 = 2.0
   cot(15) = 3.73215 = 3.73215
```

3.5 94.3.5 Comparison and logical functions

```
equal(20,20) = 1 = 1
   20 == 20 = 1 = 1
   greater(20,25) = 0 = 0
   20 > 25 = 0 = 0
   less(20,25) = 1 = 1
   20 < 25 = 1 = 1
   notequal(20,25) = 1 = 1
   20 != 25 = 1 = 1
   notgreater(20,25) = 1 = 1
   20 <= 25 = 1 = 1
   notless(20,25) = 0 = 0
   20 >= 25 = 0 = 0
   and(5>4,6>7) = 0 = 0
   5>4 && 6>7 = 0 = 0
   or(5>4,6>7) = 1 = 1
   5>4 || 6>7 = 1 = 1
   not(true) = 0 = 0
   !  true = 0 = 0
   not(false) = 1 = 1
   !  false = 1 = 1
```

```
   ifthenelse(5==4,"yes","no") = no = no
   5==4 ?  "yes" :  "no" = no = no
   true ?  "yes" :  "no" = yes = yes
   false ?  "yes" :  "no" = no = no
```

3.6 94.3.6 Pseudo-random functions

3.7 94.3.7 Base conversion functions

```
hex(65535) = ffff = ffff
   Hex(65535) = FFFF = FFFF
   oct(63) = 77 = 77
```

3.8 94.3.8 Miscellaneous functions

```
min(3,4,-2,250,-8,100) = -8.0 = -8.0
   max(3,4,-2,250,-8,100) = 250.0 = 250.0
   veclen(12,5) = 12.99976 = 12.99976
   sinh(0.5) = 0.52103 = 0.52103
   cosh(0.5) = 1.12767 = 1.12767
   tanh(0.5) = 0.462 = 0.462
   width("Some Lovely Text") = 83.99927 = 83.99927
   height("Some Lovely Text") = 6.11111 = 6.11111
   depth("Some Lovely Text") = 2.22223 = 2.22223
```

3.9 Additional predecence tests

```
2^2!  = 24.0 = 24.0
   2^(2!)  = 4.0 = 4.0
   2*2!  = 4.0 = 4.0
   3!!  = 720.0 = 720.0
   2^2^3 = 64.0 = 64.0
   2^3 r * 2 = 916.73242 = 916.73242
   2 + !1 + 2 = 4.0 = 4.0
   2^3^2 = 64.0 = 64.0
   -2^-2 = -0.25 = -0.25
   2^2!  = 24.0 = 24.0
   -3!  = -6.0 = -6.0
   2 * - 2 * 3!  = -24.0 = -24.0
```