

$\ln[\sigma] := \sigma = 6 / 5$

```
(*simulator_extended_stabilizer*)
ZeroZeroFirst10simulatorextendedstabilizer = 5
ZeroOneFirst10simulatorextendedstabilizer = 1223
OneZeroFirst10simulatorextendedstabilizer = 6626
OneOneFirst10simulatorextendedstabilizer = 338

ZeroZeroFirst08simulatorextendedstabilizer = 44
ZeroOneFirst08simulatorextendedstabilizer = 1770
OneZeroFirst08simulatorextendedstabilizer = 6015
OneOneFirst08simulatorextendedstabilizer = 363

ZeroZeroFirst06simulatorextendedstabilizer = 144
ZeroOneFirst06simulatorextendedstabilizer = 2495
OneZeroFirst06simulatorextendedstabilizer = 5139
OneOneFirst06simulatorextendedstabilizer = 414

ZeroZeroFirst04simulatorextendedstabilizer = 324
ZeroOneFirst04simulatorextendedstabilizer = 3142
OneZeroFirst04simulatorextendedstabilizer = 4299
OneOneFirst04simulatorextendedstabilizer = 427

ZeroZeroFirst02simulatorextendedstabilizer = 501
ZeroOneFirst02simulatorextendedstabilizer = 3906
OneZeroFirst02simulatorextendedstabilizer = 3312
OneOneFirst02simulatorextendedstabilizer = 473

ZeroZeroFirst00simulatorextendedstabilizer = 775
ZeroOneFirst00simulatorextendedstabilizer = 4402
OneZeroFirst00simulatorextendedstabilizer = 2486
OneOneFirst00simulatorextendedstabilizer = 529

ZeroZeroSecond02simulatorextendedstabilizer = 1086
ZeroOneSecond02simulatorextendedstabilizer = 4927
OneZeroSecond02simulatorextendedstabilizer = 1625
OneOneSecond02simulatorextendedstabilizer = 554

ZeroZeroSecond04simulatorextendedstabilizer = 1403
ZeroOneSecond04simulatorextendedstabilizer = 5315
OneZeroSecond04simulatorextendedstabilizer = 973
OneOneSecond04simulatorextendedstabilizer = 501

ZeroZeroSecond06simulatorextendedstabilizer = 1665
ZeroOneSecond06simulatorextendedstabilizer = 5588
OneZeroSecond06simulatorextendedstabilizer = 438
OneOneSecond06simulatorextendedstabilizer = 501

ZeroZeroSecond08simulatorextendedstabilizer = 1949
ZeroOneSecond08simulatorextendedstabilizer = 5703
OneZeroSecond08simulatorextendedstabilizer = 100
```

OneOneSecond08simulatorextendedstabilizer = 440

ZeroZeroSecond10simulatorextendedstabilizer = 2196

ZeroOneSecond10simulatorextendedstabilizer = 5596

OneZeroSecond10simulatorextendedstabilizer = 2

OneOneSecond10simulatorextendedstabilizer = 398

CosSqsimulatorextendedstabilizer = $\{ \{-1, \text{ZeroZeroSecond10simulatorextendedstabilizer} / (\text{OneZeroSecond10simulatorextendedstabilizer} + \text{ZeroZeroSecond10simulatorextendedstabilizer}) \},$
 $\{-0.8, \text{ZeroZeroSecond08simulatorextendedstabilizer} / (\text{OneZeroSecond08simulatorextendedstabilizer} + \text{ZeroZeroSecond08simulatorextendedstabilizer}) \},$
 $\{-0.6, \text{ZeroZeroSecond06simulatorextendedstabilizer} / (\text{OneZeroSecond06simulatorextendedstabilizer} + \text{ZeroZeroSecond06simulatorextendedstabilizer}) \},$
 $\{-0.4, \text{ZeroZeroSecond04simulatorextendedstabilizer} / (\text{OneZeroSecond04simulatorextendedstabilizer} + \text{ZeroZeroSecond04simulatorextendedstabilizer}) \},$
 $\{-0.2, \text{ZeroZeroSecond02simulatorextendedstabilizer} / (\text{OneZeroSecond02simulatorextendedstabilizer} + \text{ZeroZeroSecond02simulatorextendedstabilizer}) \},$
 $\{0.0, \text{ZeroZeroFirst00simulatorextendedstabilizer} / (\text{OneZeroFirst00simulatorextendedstabilizer} + \text{ZeroZeroFirst00simulatorextendedstabilizer}) \},$
 $\{0.2, \text{ZeroZeroFirst02simulatorextendedstabilizer} / (\text{OneZeroFirst02simulatorextendedstabilizer} + \text{ZeroZeroFirst02simulatorextendedstabilizer}) \},$
 $\{0.4, \text{ZeroZeroFirst04simulatorextendedstabilizer} / (\text{OneZeroFirst04simulatorextendedstabilizer} + \text{ZeroZeroFirst04simulatorextendedstabilizer}) \},$
 $\{0.6, \text{ZeroZeroFirst06simulatorextendedstabilizer} / (\text{OneZeroFirst06simulatorextendedstabilizer} + \text{ZeroZeroFirst06simulatorextendedstabilizer}) \},$
 $\{0.8, \text{ZeroZeroFirst08simulatorextendedstabilizer} / (\text{OneZeroFirst08simulatorextendedstabilizer} + \text{ZeroZeroFirst08simulatorextendedstabilizer}) \},$
 $\{1, \text{ZeroZeroFirst10simulatorextendedstabilizer} / (\text{OneZeroFirst10simulatorextendedstabilizer} + \text{ZeroZeroFirst10simulatorextendedstabilizer}) \} \}$

Decisivenesssimulatorextendedstabilizer = $\{ \{-1, (\text{OneZeroSecond10simulatorextendedstabilizer} + \text{ZeroZeroSecond10simulatorextendedstabilizer}) / 8192 \},$
 $\{-0.8, (\text{OneZeroSecond08simulatorextendedstabilizer} + \text{ZeroZeroSecond08simulatorextendedstabilizer}) / 8192 \},$
 $\{-0.6, (\text{OneZeroSecond06simulatorextendedstabilizer} + \text{ZeroZeroSecond06simulatorextendedstabilizer}) / 8192 \},$

```

{-0.4, (OneZeroSecond04simulatorextendedstabilizer +
ZeroZeroSecond04simulatorextendedstabilizer) / 8192},
{-0.2, (OneZeroSecond02simulatorextendedstabilizer +
ZeroZeroSecond02simulatorextendedstabilizer) / 8192},
{-0.0, (OneZeroFirst00simulatorextendedstabilizer +
ZeroZeroFirst00simulatorextendedstabilizer) / 8192},
{0.2, (OneZeroFirst02simulatorextendedstabilizer +
ZeroZeroFirst02simulatorextendedstabilizer) / 8192},
{0.4, (OneZeroFirst04simulatorextendedstabilizer +
ZeroZeroFirst04simulatorextendedstabilizer) / 8192},
{0.6, (OneZeroFirst06simulatorextendedstabilizer +
ZeroZeroFirst06simulatorextendedstabilizer) / 8192},
{0.8, (OneZeroFirst08simulatorextendedstabilizer +
ZeroZeroFirst08simulatorextendedstabilizer) / 8192},
{1.0, (OneZeroFirst10simulatorextendedstabilizer +
ZeroZeroFirst10simulatorextendedstabilizer) / 8192}}
ExpCosSqsimulatorextendedstabilizer = ListPlot[CosSqsimulatorextendedstabilizer]
ExpDecisivenesssimulatorextendedstabilizer =
ListPlot[Decisivenesssimulatorextendedstabilizer]

```

Out[]= $\frac{6}{5}$

Out[]= 5

Out[]= 1223

Out[]= 6626

Out[]= 338

Out[]= 44

Out[]= 1770

Out[]= 6015

Out[]= 363

Out[]= 144

Out[]= 2495

Out[]= 5139

Out[]= 414

Out[]= 324

Out[]= 3142

Out[]= 4299

Out[]= 427

Out[]= 501

Out[]= 3906

Out[]= 3312

Out[]= 473

Out[]= 775

Out[]= 4402

Out[]= 2486

Out[]= 529

Out[]= 1086

Out[]= 4927

Out[]= 1625

Out[]= 554

Out[]= 1403

Out[]= 5315

Out[]= 973

Out[]= 501

Out[]= 1665

Out[]= 5588

Out[]= 438

Out[]= 501

Out[]= 1949

Out[]= 5703

Out[]= 100

Out[]= 440

Out[]= 2196

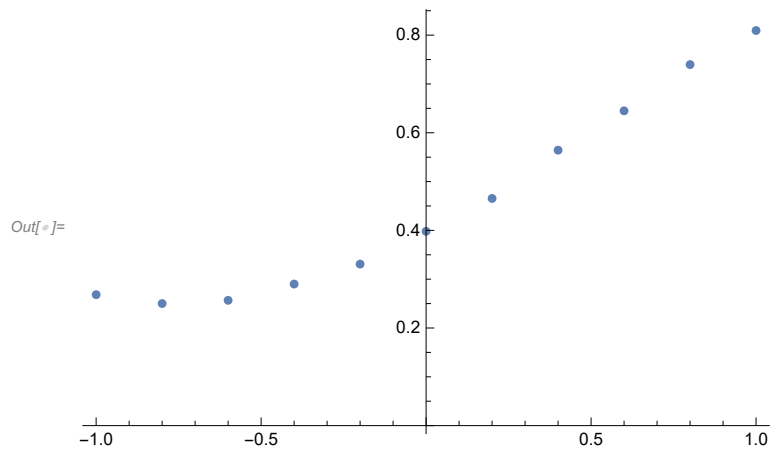
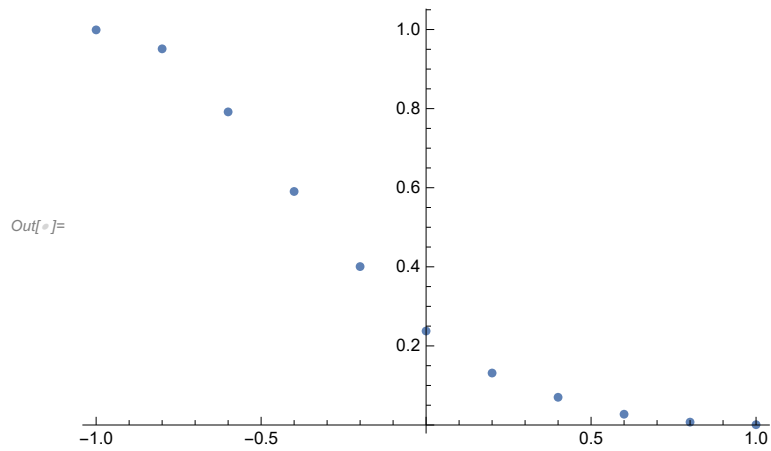
Out[]= 5596

Out[]= 2

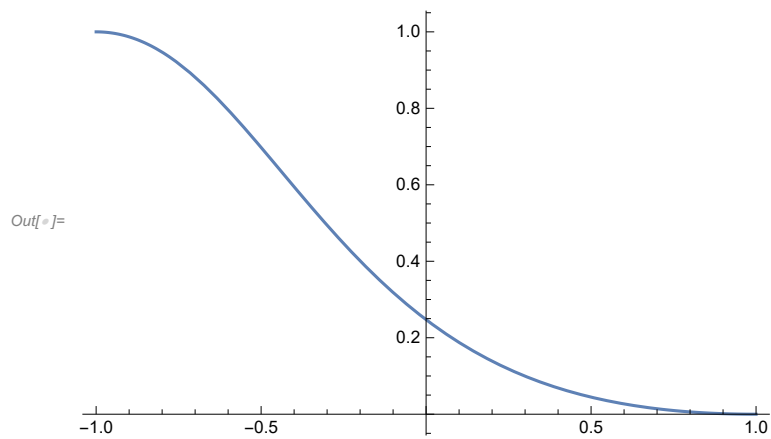
Out[]= 398

Out[]= $\left\{ \left\{ -1, \frac{1098}{1099} \right\}, \left\{ -0.8, \frac{1949}{2049} \right\}, \left\{ -0.6, \frac{555}{701} \right\}, \left\{ -0.4, \frac{1403}{2376} \right\}, \left\{ -0.2, \frac{1086}{2711} \right\}, \right.$
 $\left. \left\{ 0., \frac{775}{3261} \right\}, \left\{ 0.2, \frac{167}{1271} \right\}, \left\{ 0.4, \frac{108}{1541} \right\}, \left\{ 0.6, \frac{16}{587} \right\}, \left\{ 0.8, \frac{44}{6059} \right\}, \left\{ 1, \frac{5}{6631} \right\} \right\}$

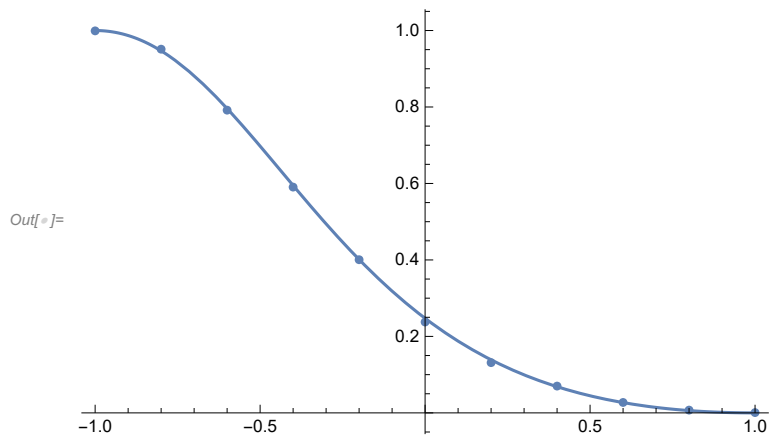
Out[]:= $\left\{ \left\{ -1, \frac{1099}{4096} \right\}, \left\{ -0.8, \frac{2049}{8192} \right\}, \left\{ -0.6, \frac{2103}{8192} \right\}, \left\{ -0.4, \frac{297}{1024} \right\}, \left\{ -0.2, \frac{2711}{8192} \right\}, \right.$
 $\left. \left\{ 0., \frac{3261}{8192} \right\}, \left\{ 0.2, \frac{3813}{8192} \right\}, \left\{ 0.4, \frac{4623}{8192} \right\}, \left\{ 0.6, \frac{5283}{8192} \right\}, \left\{ 0.8, \frac{6059}{8192} \right\}, \left\{ 1., \frac{6631}{8192} \right\} \right\}$



In[]:= **cosTH = Plot**[1 - N[cosFirstFunction[-x * σ, 6 / 5, π / 2 - 1, 1]], {x, -1, 1}]

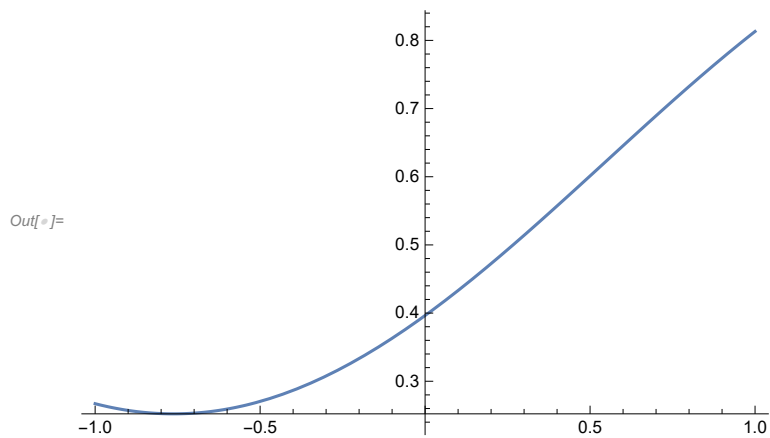


```
In[ ]:= Show[cosTH, ExpCosSqsimulatorextendedstabilizer]
```

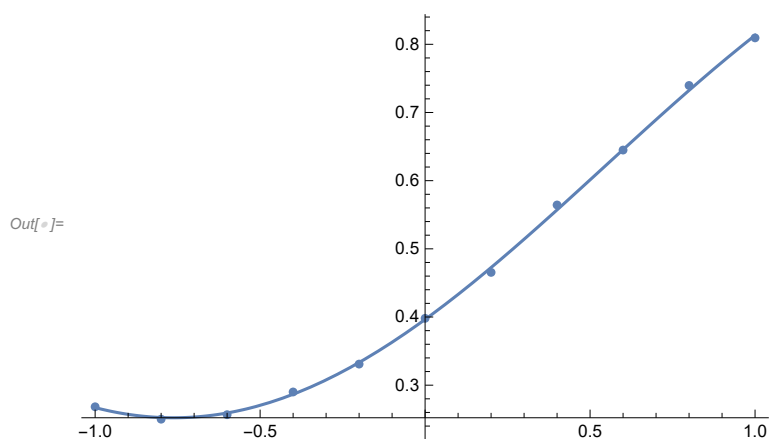


```
In[ ]:=
```

```
In[ ]:= decTH = Plot[DecisivenessFirstFunction[-x * σ, 6 / 5, π / 2 - 1, 2], {x, -1, 1}]
```



```
In[ ]:= Show[decTH, ExpDecisivenesssimulatorextendedstabilizer]
```



```
In[ ]:= (*simulator_mps*)
ZeroZeroFirst10simulatormps = 0
ZeroOneFirst10simulatormps = 1206
OneZeroFirst10simulatormps = 6680
```

OneOneFirst10simulatormps = 306

ZeroZeroFirst08simulatormps = 45
 ZeroOneFirst08simulatormps = 1797
 OneZeroFirst08simulatormps = 5981
 OneOneFirst08simulatormps = 369

ZeroZeroFirst06simulatormps = 153
 ZeroOneFirst06simulatormps = 2470
 OneZeroFirst06simulatormps = 5158
 OneOneFirst06simulatormps = 411

ZeroZeroFirst04simulatormps = 325
 ZeroOneFirst04simulatormps = 3147
 OneZeroFirst04simulatormps = 4235
 OneOneFirst04simulatormps = 485

ZeroZeroFirst02simulatormps = 542
 ZeroOneFirst02simulatormps = 3877
 OneZeroFirst02simulatormps = 3244
 OneOneFirst02simulatormps = 529

ZeroZeroFirst00simulatormps = 789
 ZeroOneFirst00simulatormps = 4472
 OneZeroFirst00simulatormps = 2442
 OneOneFirst00simulatormps = 489

ZeroZeroSecond02simulatormps = 1030
 ZeroOneSecond02simulatormps = 4972
 OneZeroSecond02simulatormps = 1677
 OneOneSecond02simulatormps = 513

ZeroZeroSecond04simulatormps = 1431
 ZeroOneSecond04simulatormps = 5298
 OneZeroSecond04simulatormps = 970
 OneOneSecond04simulatormps = 493

ZeroZeroSecond06simulatormps = 1694
 ZeroOneSecond06simulatormps = 5605
 OneZeroSecond06simulatormps = 411
 OneOneSecond06simulatormps = 482

ZeroZeroSecond08simulatormps = 1957
 ZeroOneSecond08simulatormps = 5667
 OneZeroSecond08simulatormps = 101
 OneOneSecond08simulatormps = 467

ZeroZeroSecond10simulatormps = 2193
 ZeroOneSecond10simulatormps = 5626
 OneZeroSecond10simulatormps = 0
 OneOneSecond10simulatormps = 373

```

CosSqsimulatormps = {{-1, ZeroZeroSecond10simulatormps /
  (OneZeroSecond10simulatormps + ZeroZeroSecond10simulatormps)},
  {-0.8, ZeroZeroSecond08simulatormps / (OneZeroSecond08simulatormps +
    ZeroZeroSecond08simulatormps)}, {-0.6, ZeroZeroSecond06simulatormps /
    (OneZeroSecond06simulatormps + ZeroZeroSecond06simulatormps)},
  {-0.4, ZeroZeroSecond04simulatormps / (OneZeroSecond04simulatormps +
    ZeroZeroSecond04simulatormps)}, {-0.2, ZeroZeroSecond02simulatormps /
    (OneZeroSecond02simulatormps + ZeroZeroSecond02simulatormps)},
  {0.0, ZeroZeroFirst00simulatormps / (OneZeroFirst00simulatormps +
    ZeroZeroFirst00simulatormps)}, {0.2, ZeroZeroFirst02simulatormps /
    (OneZeroFirst02simulatormps + ZeroZeroFirst02simulatormps)},
  {0.4, ZeroZeroFirst04simulatormps / (OneZeroFirst04simulatormps +
    ZeroZeroFirst04simulatormps)}, {0.6, ZeroZeroFirst06simulatormps /
    (OneZeroFirst06simulatormps + ZeroZeroFirst06simulatormps)},
  {0.8, ZeroZeroFirst08simulatormps / (OneZeroFirst08simulatormps +
    ZeroZeroFirst08simulatormps)}, {1, ZeroZeroFirst10simulatormps /
    (OneZeroFirst10simulatormps + ZeroZeroFirst10simulatormps)}}
Decisivenesssimulatormps = {{-1,
  (OneZeroSecond10simulatormps + ZeroZeroSecond10simulatormps) / 8192},
  {-0.8, (OneZeroSecond08simulatormps + ZeroZeroSecond08simulatormps) / 8192},
  {-0.6, (OneZeroSecond06simulatormps + ZeroZeroSecond06simulatormps) / 8192},
  {-0.4, (OneZeroSecond04simulatormps + ZeroZeroSecond04simulatormps) / 8192},
  {-0.2, (OneZeroSecond02simulatormps + ZeroZeroSecond02simulatormps) / 8192},
  {-0.0, (OneZeroFirst00simulatormps + ZeroZeroFirst00simulatormps) / 8192},
  {0.2, (OneZeroFirst02simulatormps + ZeroZeroFirst02simulatormps) / 8192},
  {0.4, (OneZeroFirst04simulatormps + ZeroZeroFirst04simulatormps) / 8192},
  {0.6, (OneZeroFirst06simulatormps + ZeroZeroFirst06simulatormps) / 8192},
  {0.8, (OneZeroFirst08simulatormps + ZeroZeroFirst08simulatormps) / 8192},
  {1.0, (OneZeroFirst10simulatormps + ZeroZeroFirst10simulatormps) / 8192}}
ExpCosSqsimulatormps = ListPlot[CosSqsimulatormps]
ExpDecisivenesssimulatormps = ListPlot[Decisivenesssimulatormps]

```

Out[]= 0

Out[]= 1206

Out[]= 6680

Out[]= 306

Out[]= 45

Out[]= 1797

Out[]= 5981

Out[]= 369

Out[]= 153

Out[]= 2470

Out[]= 5158

Out[]= 411

Out[]= 325

Out[]= 3147

Out[]= 4235

Out[]= 485

Out[]= 542

Out[]= 3877

Out[]= 3244

Out[]= 529

Out[]= 789

Out[]= 4472

Out[]= 2442

Out[]= 489

Out[]= 1030

Out[]= 4972

Out[]= 1677

Out[]= 513

Out[]= 1431

Out[]= 5298

Out[]= 970

Out[]= 493

Out[]= 1694

Out[]= 5605

Out[]= 411

Out[]= 482

Out[]= 1957

Out[]= 5667

Out[]= 101

Out[]= 467

Out[]= 2193

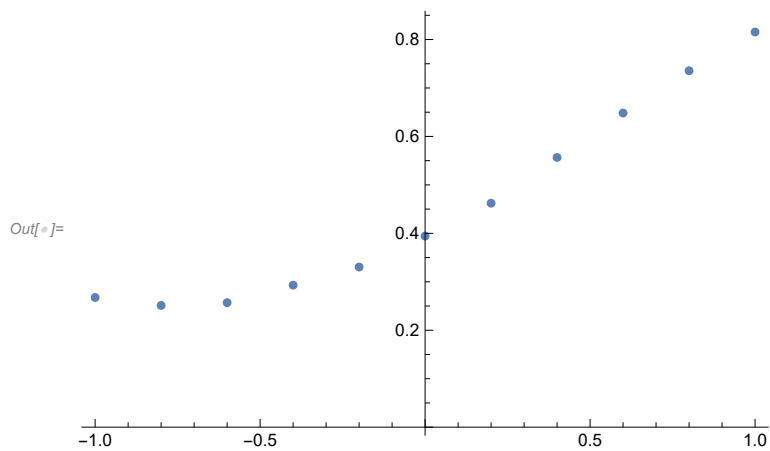
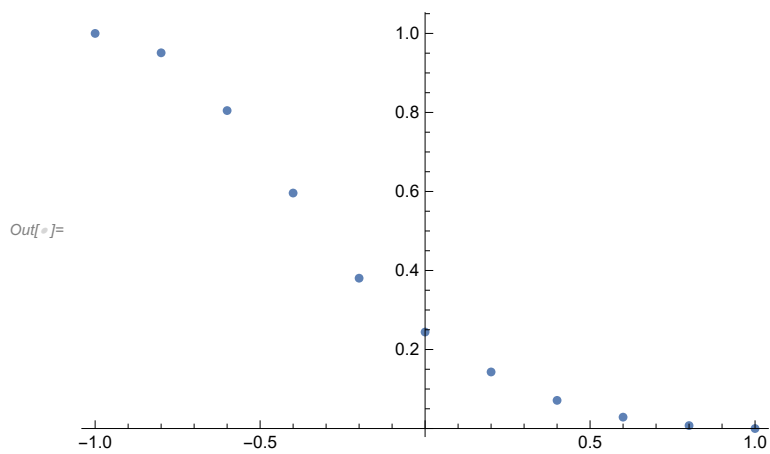
Out[]= 5626

Out[]= 0

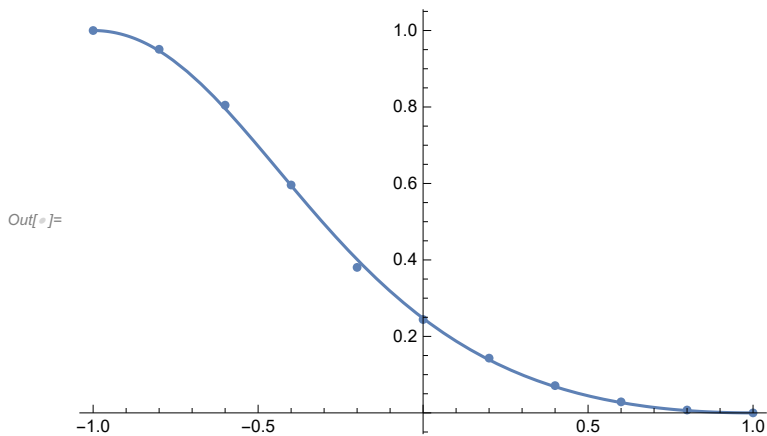
Out[]= 373

Out[]= $\left\{ \left\{ -1, 1 \right\}, \left\{ -0.8, \frac{1957}{2058} \right\}, \left\{ -0.6, \frac{1694}{2105} \right\}, \left\{ -0.4, \frac{1431}{2401} \right\}, \left\{ -0.2, \frac{1030}{2707} \right\}, \right.$
 $\left. \left\{ 0., \frac{263}{1077} \right\}, \left\{ 0.2, \frac{271}{1893} \right\}, \left\{ 0.4, \frac{65}{912} \right\}, \left\{ 0.6, \frac{153}{5311} \right\}, \left\{ 0.8, \frac{45}{6026} \right\}, \left\{ 1, 0 \right\} \right\}$

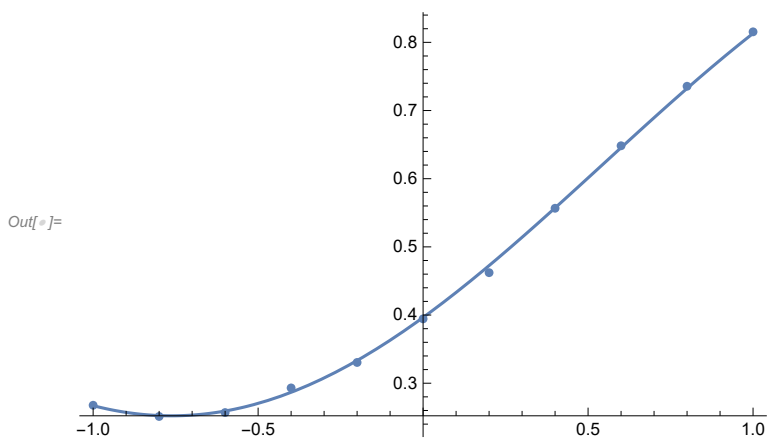
Out[]= $\left\{ \left\{ -1, \frac{2193}{8192} \right\}, \left\{ -0.8, \frac{1029}{4096} \right\}, \left\{ -0.6, \frac{2105}{8192} \right\}, \left\{ -0.4, \frac{2401}{8192} \right\}, \left\{ -0.2, \frac{2707}{8192} \right\}, \right.$
 $\left. \left\{ 0., \frac{3231}{8192} \right\}, \left\{ 0.2, \frac{1893}{4096} \right\}, \left\{ 0.4, \frac{285}{512} \right\}, \left\{ 0.6, \frac{5311}{8192} \right\}, \left\{ 0.8, \frac{3013}{4096} \right\}, \left\{ 1., \frac{835}{1024} \right\} \right\}$



In[]:= Show[cosTH, ExpCosSqsimulatormps]



In[]:= Show[decTH, ExpDecisivenesssimulatormps]



In[]:= (*simulator_statevector*)

ZeroZeroFirst10simulatorstatevector = 0
 ZeroOneFirst10simulatorstatevector = 1196
 OneZeroFirst10simulatorstatevector = 6699
 OneOneFirst10simulatorstatevector = 297

ZeroZeroFirst08simulatorstatevector = 39
 ZeroOneFirst08simulatorstatevector = 1812
 OneZeroFirst08simulatorstatevector = 5982
 OneOneFirst08simulatorstatevector = 359

ZeroZeroFirst06simulatorstatevector = 135
 ZeroOneFirst06simulatorstatevector = 2544
 OneZeroFirst06simulatorstatevector = 5081
 OneOneFirst06simulatorstatevector = 432

ZeroZeroFirst04simulatorstatevector = 328
 ZeroOneFirst04simulatorstatevector = 3163
 OneZeroFirst04simulatorstatevector = 4267
 OneOneFirst04simulatorstatevector = 434

```

ZeroZeroFirst02simulatorstatevector = 567
ZeroOneFirst02simulatorstatevector = 3805
OneZeroFirst02simulatorstatevector = 3311
OneOneFirst02simulatorstatevector = 509

```

```

ZeroZeroFirst00simulatorstatevector = 811
ZeroOneFirst00simulatorstatevector = 4376
OneZeroFirst00simulatorstatevector = 2522
OneOneFirst00simulatorstatevector = 483

```

```

ZeroZeroSecond02simulatorstatevector = 1128
ZeroOneSecond02simulatorstatevector = 4936
OneZeroSecond02simulatorstatevector = 1631
OneOneSecond02simulatorstatevector = 497

```

```

ZeroZeroSecond04simulatorstatevector = 1375
ZeroOneSecond04simulatorstatevector = 5379
OneZeroSecond04simulatorstatevector = 934
OneOneSecond04simulatorstatevector = 504

```

```

ZeroZeroSecond06simulatorstatevector = 1735
ZeroOneSecond06simulatorstatevector = 5558
OneZeroSecond06simulatorstatevector = 418
OneOneSecond06simulatorstatevector = 481

```

```

ZeroZeroSecond08simulatorstatevector = 1983
ZeroOneSecond08simulatorstatevector = 5661
OneZeroSecond08simulatorstatevector = 100
OneOneSecond08simulatorstatevector = 448

```

```

ZeroZeroSecond10simulatorstatevector = 2137
ZeroOneSecond10simulatorstatevector = 5659
OneZeroSecond10simulatorstatevector = 0
OneOneSecond10simulatorstatevector = 396

```

```

CosSqsimulatorstatevector = {{-1, ZeroZeroSecond10simulatorstatevector /
  (OneZeroSecond10simulatorstatevector + ZeroZeroSecond10simulatorstatevector)},
  {-0.8, ZeroZeroSecond08simulatorstatevector /
  (OneZeroSecond08simulatorstatevector + ZeroZeroSecond08simulatorstatevector)},
  {-0.6, ZeroZeroSecond06simulatorstatevector /
  (OneZeroSecond06simulatorstatevector + ZeroZeroSecond06simulatorstatevector)},
  {-0.4, ZeroZeroSecond04simulatorstatevector /
  (OneZeroSecond04simulatorstatevector + ZeroZeroSecond04simulatorstatevector)},
  {-0.2, ZeroZeroSecond02simulatorstatevector /
  (OneZeroSecond02simulatorstatevector + ZeroZeroSecond02simulatorstatevector)},
  {0.0, ZeroZeroFirst00simulatorstatevector /
  (OneZeroFirst00simulatorstatevector + ZeroZeroFirst00simulatorstatevector)},
  {0.2, ZeroZeroFirst02simulatorstatevector /
  (OneZeroFirst02simulatorstatevector + ZeroZeroFirst02simulatorstatevector)},
  {0.4, ZeroZeroFirst04simulatorstatevector /

```

```

    (OneZeroFirst04simulatorstatevector + ZeroZeroFirst04simulatorstatevector) }},
    {0.6, ZeroZeroFirst06simulatorstatevector /
    (OneZeroFirst06simulatorstatevector + ZeroZeroFirst06simulatorstatevector) }},
    {0.8, ZeroZeroFirst08simulatorstatevector /
    (OneZeroFirst08simulatorstatevector + ZeroZeroFirst08simulatorstatevector) }},
    {1, ZeroZeroFirst10simulatorstatevector /
    (OneZeroFirst10simulatorstatevector + ZeroZeroFirst10simulatorstatevector) }}
Decisivenesssimulatorstatevector = {{-1,
    (OneZeroSecond10simulatorstatevector + ZeroZeroSecond10simulatorstatevector) / 8192},
    {-0.8, (OneZeroSecond08simulatorstatevector + ZeroZeroSecond08simulatorstatevector) /
    8192}, {-0.6,
    (OneZeroSecond06simulatorstatevector + ZeroZeroSecond06simulatorstatevector) / 8192},
    {-0.4, (OneZeroSecond04simulatorstatevector + ZeroZeroSecond04simulatorstatevector) /
    8192}, {-0.2, (OneZeroSecond02simulatorstatevector +
    ZeroZeroSecond02simulatorstatevector) / 8192}, {-0.0,
    (OneZeroFirst00simulatorstatevector + ZeroZeroFirst00simulatorstatevector) / 8192},
    {0.2, (OneZeroFirst02simulatorstatevector + ZeroZeroFirst02simulatorstatevector) / 8192},
    {0.4, (OneZeroFirst04simulatorstatevector + ZeroZeroFirst04simulatorstatevector) / 8192},
    {0.6, (OneZeroFirst06simulatorstatevector + ZeroZeroFirst06simulatorstatevector) / 8192},
    {0.8, (OneZeroFirst08simulatorstatevector + ZeroZeroFirst08simulatorstatevector) / 8192},
    {1.0, (OneZeroFirst10simulatorstatevector + ZeroZeroFirst10simulatorstatevector) / 8192}}
ExpCosSqsimulatorstatevector = ListPlot[CosSqsimulatorstatevector]
ExpDecisivenesssimulatorstatevector = ListPlot[Decisivenesssimulatorstatevector]

```

Out[]= 0

Out[]= 1196

Out[]= 6699

Out[]= 297

Out[]= 39

Out[]= 1812

Out[]= 5982

Out[]= 359

Out[]= 135

Out[]= 2544

Out[]= 5081

Out[]= 432

Out[]= 328

Out[]= 3163

Out[]= 4267

Out[]= 434

Out[]= 567

Out[]= 3805

Out[]= 3311

Out[]= 509

Out[]= 811

Out[]= 4376

Out[]= 2522

Out[]= 483

Out[]= 1128

Out[]= 4936

Out[]= 1631

Out[]= 497

Out[]= 1375

Out[]= 5379

Out[]= 934

Out[]= 504

Out[]= 1735

Out[]= 5558

Out[]= 418

Out[]= 481

Out[]= 1983

Out[]= 5661

Out[]= 100

Out[]= 448

Out[]= 2137

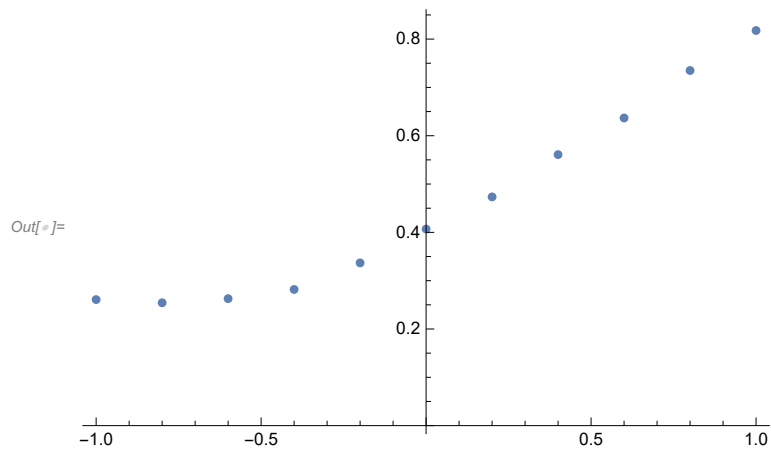
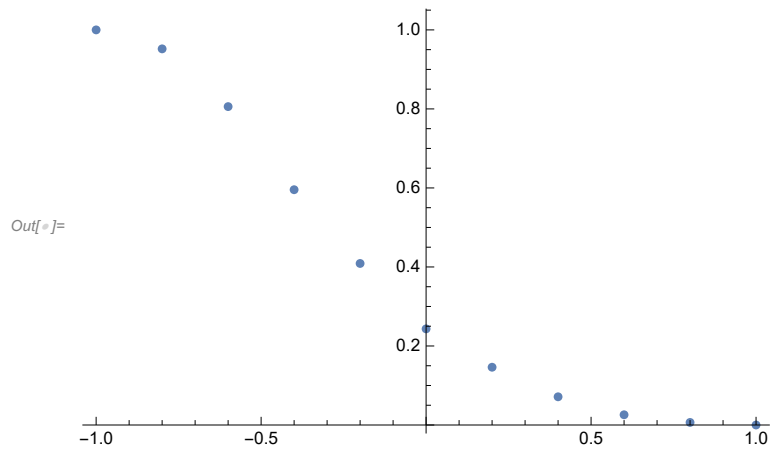
Out[]= 5659

Out[]= 0

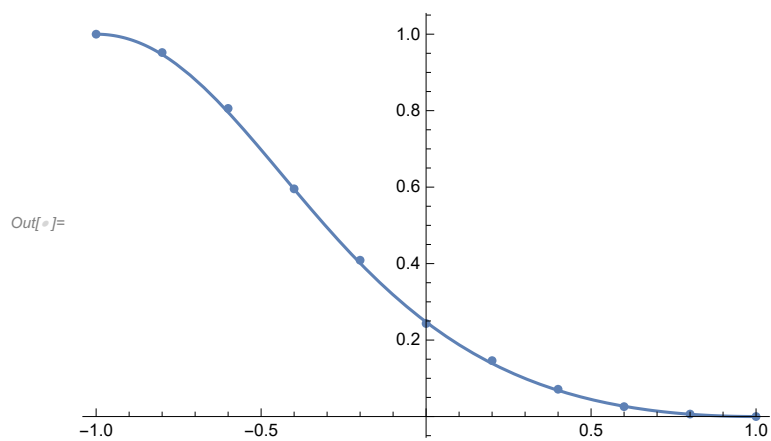
Out[]= 396

Out[]= $\left\{ \{-1, 1\}, \left\{-0.8, \frac{1983}{2083}\right\}, \left\{-0.6, \frac{1735}{2153}\right\}, \left\{-0.4, \frac{1375}{2309}\right\}, \left\{-0.2, \frac{1128}{2759}\right\}, \right.$
 $\left. \left\{0., \frac{811}{3333}\right\}, \left\{0.2, \frac{81}{554}\right\}, \left\{0.4, \frac{328}{4595}\right\}, \left\{0.6, \frac{135}{5216}\right\}, \left\{0.8, \frac{13}{2007}\right\}, \{1, 0\} \right\}$

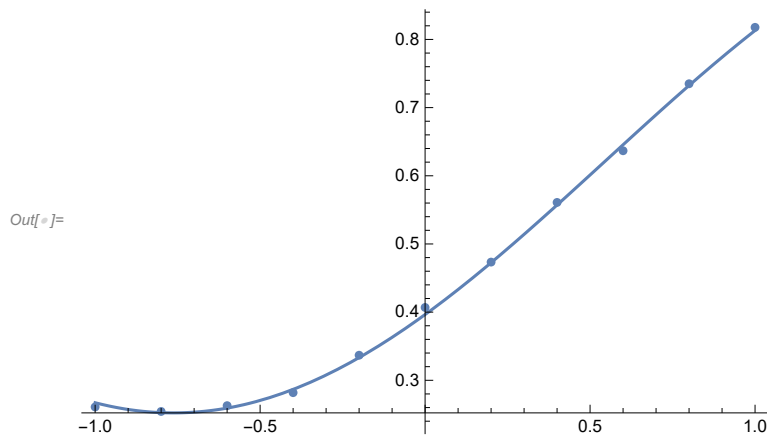
Out[]:= $\left\{ \left\{ -1, \frac{2137}{8192} \right\}, \left\{ -0.8, \frac{2083}{8192} \right\}, \left\{ -0.6, \frac{2153}{8192} \right\}, \left\{ -0.4, \frac{2309}{8192} \right\}, \left\{ -0.2, \frac{2759}{8192} \right\}, \right.$
 $\left. \left\{ 0., \frac{3333}{8192} \right\}, \left\{ 0.2, \frac{1939}{4096} \right\}, \left\{ 0.4, \frac{4595}{8192} \right\}, \left\{ 0.6, \frac{163}{256} \right\}, \left\{ 0.8, \frac{6021}{8192} \right\}, \left\{ 1., \frac{6699}{8192} \right\} \right\}$



In[]:= Show[cosh, ExpCosQsimulatorstatevector]



```
In[ ]:= Show[decTH, ExpDecisivenesssimulatorstatevector]
```



```
In[ ]:= (*ibm_nairobi*)
```

```
ZeroZeroFirst10ibmnairobi = 435
```

```
ZeroOneFirst10ibmnairobi = 1014
```

```
OneZeroFirst10ibmnairobi = 6066
```

```
OneOneFirst10ibmnairobi = 677
```

```
ZeroZeroFirst08ibmnairobi = 517
```

```
ZeroOneFirst08ibmnairobi = 1482
```

```
OneZeroFirst08ibmnairobi = 5450
```

```
OneOneFirst08ibmnairobi = 743
```

```
ZeroZeroFirst06ibmnairobi = 766
```

```
ZeroOneFirst06ibmnairobi = 2006
```

```
OneZeroFirst06ibmnairobi = 4701
```

```
OneOneFirst06ibmnairobi = 719
```

```
ZeroZeroFirst04ibmnairobi = 1036
```

```
ZeroOneFirst04ibmnairobi = 2549
```

```
OneZeroFirst04ibmnairobi = 3938
```

```
OneOneFirst04ibmnairobi = 669
```

```
ZeroZeroFirst02ibmnairobi = 1409
```

```
ZeroOneFirst02ibmnairobi = 3090
```

```
OneZeroFirst02ibmnairobi = 2944
```

```
OneOneFirst02ibmnairobi = 749
```

```
ZeroZeroFirst00ibmnairobi = 1707
```

```
ZeroOneFirst00ibmnairobi = 3647
```

```
OneZeroFirst00ibmnairobi = 2072
```

```
OneOneFirst00ibmnairobi = 766
```

```
ZeroZeroSecond02ibmnairobi = 1974
```

```
ZeroOneSecond02ibmnairobi = 4102
```

```
OneZeroSecond02ibmnairobi = 1411
```

```
OneOneSecond02ibmnairobi = 705
```



```

ZeroZeroSecond04ibmnairobi = 2237
ZeroOneSecond04ibmnairobi = 4613
OneZeroSecond04ibmnairobi = 775
OneOneSecond04ibmnairobi = 567

```

```

ZeroZeroSecond06ibmnairobi = 2432
ZeroOneSecond06ibmnairobi = 4780
OneZeroSecond06ibmnairobi = 411
OneOneSecond06ibmnairobi = 569

```

```

ZeroZeroSecond08ibmnairobi = 2632
ZeroOneSecond08ibmnairobi = 4981
OneZeroSecond08ibmnairobi = 168
OneOneSecond08ibmnairobi = 411

```

```

ZeroZeroSecond10ibmnairobi = 2729
ZeroOneSecond10ibmnairobi = 5022
OneZeroSecond10ibmnairobi = 118
OneOneSecond10ibmnairobi = 323

```

```

CosSqibmnairobi = {{-1,
  ZeroZeroSecond10ibmnairobi / (OneZeroSecond10ibmnairobi + ZeroZeroSecond10ibmnairobi)},
{-0.8, ZeroZeroSecond08ibmnairobi /
  (OneZeroSecond08ibmnairobi + ZeroZeroSecond08ibmnairobi)}, {-0.6,
  ZeroZeroSecond06ibmnairobi / (OneZeroSecond06ibmnairobi + ZeroZeroSecond06ibmnairobi)},
{-0.4, ZeroZeroSecond04ibmnairobi /
  (OneZeroSecond04ibmnairobi + ZeroZeroSecond04ibmnairobi)}, {-0.2,
  ZeroZeroSecond02ibmnairobi / (OneZeroSecond02ibmnairobi + ZeroZeroSecond02ibmnairobi)},
{0.0, ZeroZeroFirst00ibmnairobi / (OneZeroFirst00ibmnairobi + ZeroZeroFirst00ibmnairobi)},
{0.2, ZeroZeroFirst02ibmnairobi / (OneZeroFirst02ibmnairobi + ZeroZeroFirst02ibmnairobi)},
{0.4, ZeroZeroFirst04ibmnairobi / (OneZeroFirst04ibmnairobi + ZeroZeroFirst04ibmnairobi)},
{0.6, ZeroZeroFirst06ibmnairobi / (OneZeroFirst06ibmnairobi + ZeroZeroFirst06ibmnairobi)},
{0.8, ZeroZeroFirst08ibmnairobi / (OneZeroFirst08ibmnairobi + ZeroZeroFirst08ibmnairobi)},
{1, ZeroZeroFirst10ibmnairobi / (OneZeroFirst10ibmnairobi + ZeroZeroFirst10ibmnairobi)}}

```

```

Decisivenessibmnairobi =
{{-1, (OneZeroSecond10ibmnairobi + ZeroZeroSecond10ibmnairobi) / 8192},
{-0.8, (OneZeroSecond08ibmnairobi + ZeroZeroSecond08ibmnairobi) / 8192},
{-0.6, (OneZeroSecond06ibmnairobi + ZeroZeroSecond06ibmnairobi) / 8192},
{-0.4, (OneZeroSecond04ibmnairobi + ZeroZeroSecond04ibmnairobi) / 8192},
{-0.2, (OneZeroSecond02ibmnairobi + ZeroZeroSecond02ibmnairobi) / 8192},
{-0.0, (OneZeroFirst00ibmnairobi + ZeroZeroFirst00ibmnairobi) / 8192},
{0.2, (OneZeroFirst02ibmnairobi + ZeroZeroFirst02ibmnairobi) / 8192},
{0.4, (OneZeroFirst04ibmnairobi + ZeroZeroFirst04ibmnairobi) / 8192},
{0.6, (OneZeroFirst06ibmnairobi + ZeroZeroFirst06ibmnairobi) / 8192},
{0.8, (OneZeroFirst08ibmnairobi + ZeroZeroFirst08ibmnairobi) / 8192},
{1.0, (OneZeroFirst10ibmnairobi + ZeroZeroFirst10ibmnairobi) / 8192}}

```

```
ExpCosSqibmnairobi = ListPlot[CosSqibmnairobi]
```

```
ExpDecisivenessibmnairobi = ListPlot[Decisivenessibmnairobi]
```

Out[]= 435

Out[]= 1014

Out[]= 6066

Out[]= 677

Out[]= 517

Out[]= 1482

Out[]= 5450

Out[]= 743

Out[]= 766

Out[]= 2006

Out[]= 4701

Out[]= 719

Out[]= 1036

Out[]= 2549

Out[]= 3938

Out[]= 669

Out[]= 1409

Out[]= 3090

Out[]= 2944

Out[]= 749

Out[]= 1707

Out[]= 3647

Out[]= 2072

Out[]= 766

Out[]= 1974

Out[]= 4102

Out[]= 1411

Out[]= 705

Out[]= 2237

Out[]= 4613

Out[]= 775

Out[]= 567

Out[]= 2432

Out[]= 4780

Out[]= 411

Out[]= 569

Out[]= 2632

Out[]= 4981

Out[]= 168

Out[]= 411

Out[]= 2729

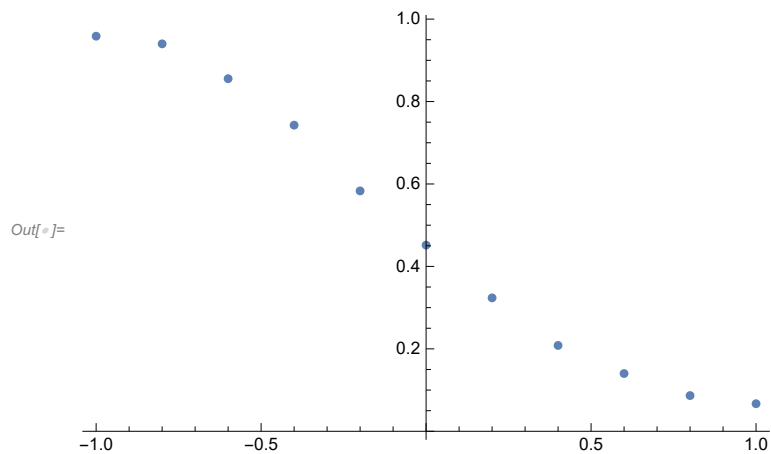
Out[]= 5022

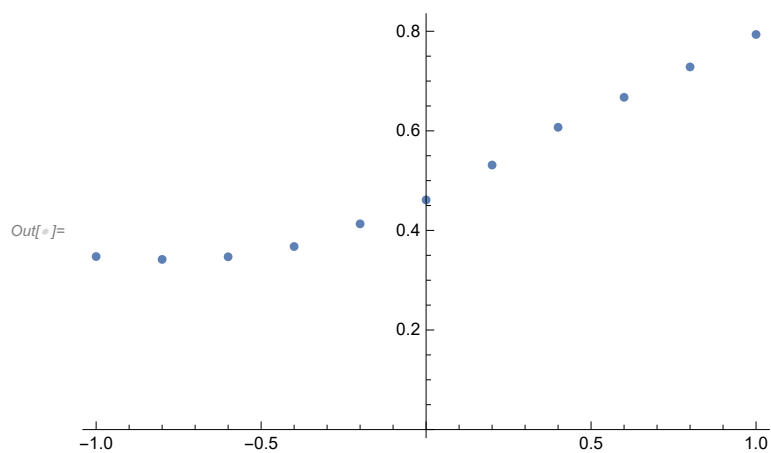
Out[]= 118

Out[]= 323

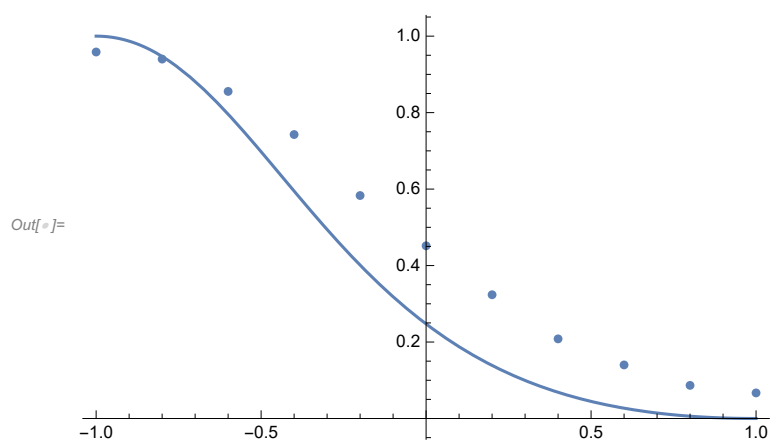
Out[]= $\left\{ \left\{ -1, \frac{2729}{2847} \right\}, \left\{ -0.8, \frac{47}{50} \right\}, \left\{ -0.6, \frac{2432}{2843} \right\}, \left\{ -0.4, \frac{2237}{3012} \right\}, \left\{ -0.2, \frac{1974}{3385} \right\}, \right.$
 $\left. \left\{ 0., \frac{1707}{3779} \right\}, \left\{ 0.2, \frac{1409}{4353} \right\}, \left\{ 0.4, \frac{518}{2487} \right\}, \left\{ 0.6, \frac{766}{5467} \right\}, \left\{ 0.8, \frac{517}{5967} \right\}, \left\{ 1, \frac{145}{2167} \right\} \right\}$

Out[]= $\left\{ \left\{ -1, \frac{2847}{8192} \right\}, \left\{ -0.8, \frac{175}{512} \right\}, \left\{ -0.6, \frac{2843}{8192} \right\}, \left\{ -0.4, \frac{753}{2048} \right\}, \left\{ -0.2, \frac{3385}{8192} \right\}, \right.$
 $\left. \left\{ 0., \frac{3779}{8192} \right\}, \left\{ 0.2, \frac{4353}{8192} \right\}, \left\{ 0.4, \frac{2487}{4096} \right\}, \left\{ 0.6, \frac{5467}{8192} \right\}, \left\{ 0.8, \frac{5967}{8192} \right\}, \left\{ 1., \frac{6501}{8192} \right\} \right\}$

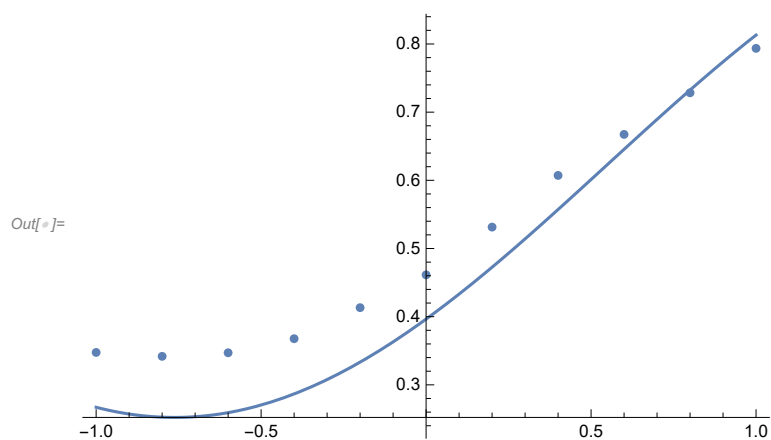




In[]:= Show[cosTH, ExpCosSqibmnairobi]



In[]:= Show[decTH, ExpDecisivenessibmnairobi]



In[]:= (*ibm_oslo*)

ZeroZeroFirst10ibmoslo = 215

ZeroOneFirst10ibmoslo = 1336

OneZeroFirst10ibmoslo = 6132

OneOneFirst10ibmoslo = 509

ZeroZeroFirst08ibmoslo = 238

ZeroOneFirst08ibmoslo = 1762
 OneZeroFirst08ibmoslo = 5648
 OneOneFirst08ibmoslo = 544

ZeroZeroFirst06ibmoslo = 302
 ZeroOneFirst06ibmoslo = 2311
 OneZeroFirst06ibmoslo = 4959
 OneOneFirst06ibmoslo = 620

ZeroZeroFirst04ibmoslo = 430
 ZeroOneFirst04ibmoslo = 2820
 OneZeroFirst04ibmoslo = 4266
 OneOneFirst04ibmoslo = 676

ZeroZeroFirst02ibmoslo = 570
 ZeroOneFirst02ibmoslo = 3382
 OneZeroFirst02ibmoslo = 3520
 OneOneFirst02ibmoslo = 720

ZeroZeroFirst00ibmoslo = 813
 ZeroOneFirst00ibmoslo = 4087
 OneZeroFirst00ibmoslo = 2679
 OneOneFirst00ibmoslo = 613

ZeroZeroSecond02ibmoslo = 1103
 ZeroOneSecond02ibmoslo = 4619
 OneZeroSecond02ibmoslo = 1901
 OneOneSecond02ibmoslo = 569

ZeroZeroSecond04ibmoslo = 1396
 ZeroOneSecond04ibmoslo = 4897
 OneZeroSecond04ibmoslo = 1318
 OneOneSecond04ibmoslo = 581

ZeroZeroSecond06ibmoslo = 1742
 ZeroOneSecond06ibmoslo = 5076
 OneZeroSecond06ibmoslo = 793
 OneOneSecond06ibmoslo = 581

ZeroZeroSecond08ibmoslo = 1995
 ZeroOneSecond08ibmoslo = 5164
 OneZeroSecond08ibmoslo = 493
 OneOneSecond08ibmoslo = 540

ZeroZeroSecond10ibmoslo = 1985
 ZeroOneSecond10ibmoslo = 5447
 OneZeroSecond10ibmoslo = 166
 OneOneSecond10ibmoslo = 594

CosSqibmoslo =
 $\{-1, \text{ZeroZeroSecond10ibmoslo} / (\text{OneZeroSecond10ibmoslo} + \text{ZeroZeroSecond10ibmoslo})\},$

```

{-0.8, ZeroZeroSecond08ibmoslo / (OneZeroSecond08ibmoslo + ZeroZeroSecond08ibmoslo)},
{-0.6, ZeroZeroSecond06ibmoslo / (OneZeroSecond06ibmoslo + ZeroZeroSecond06ibmoslo)},
{-0.4, ZeroZeroSecond04ibmoslo / (OneZeroSecond04ibmoslo + ZeroZeroSecond04ibmoslo)},
{-0.2, ZeroZeroSecond02ibmoslo / (OneZeroSecond02ibmoslo + ZeroZeroSecond02ibmoslo)},
{0.0, ZeroZeroFirst00ibmoslo / (OneZeroFirst00ibmoslo + ZeroZeroFirst00ibmoslo)},
{0.2, ZeroZeroFirst02ibmoslo / (OneZeroFirst02ibmoslo + ZeroZeroFirst02ibmoslo)},
{0.4, ZeroZeroFirst04ibmoslo / (OneZeroFirst04ibmoslo + ZeroZeroFirst04ibmoslo)},
{0.6, ZeroZeroFirst06ibmoslo / (OneZeroFirst06ibmoslo + ZeroZeroFirst06ibmoslo)},
{0.8, ZeroZeroFirst08ibmoslo / (OneZeroFirst08ibmoslo + ZeroZeroFirst08ibmoslo)},
{1, ZeroZeroFirst10ibmoslo / (OneZeroFirst10ibmoslo + ZeroZeroFirst10ibmoslo)}}
Decisivenessibmoslo = {{-1, (OneZeroSecond10ibmoslo + ZeroZeroSecond10ibmoslo) / 8192},
{-0.8, (OneZeroSecond08ibmoslo + ZeroZeroSecond08ibmoslo) / 8192},
{-0.6, (OneZeroSecond06ibmoslo + ZeroZeroSecond06ibmoslo) / 8192},
{-0.4, (OneZeroSecond04ibmoslo + ZeroZeroSecond04ibmoslo) / 8192},
{-0.2, (OneZeroSecond02ibmoslo + ZeroZeroSecond02ibmoslo) / 8192},
{-0.0, (OneZeroFirst00ibmoslo + ZeroZeroFirst00ibmoslo) / 8192},
{0.2, (OneZeroFirst02ibmoslo + ZeroZeroFirst02ibmoslo) / 8192},
{0.4, (OneZeroFirst04ibmoslo + ZeroZeroFirst04ibmoslo) / 8192},
{0.6, (OneZeroFirst06ibmoslo + ZeroZeroFirst06ibmoslo) / 8192},
{0.8, (OneZeroFirst08ibmoslo + ZeroZeroFirst08ibmoslo) / 8192},
{1.0, (OneZeroFirst10ibmoslo + ZeroZeroFirst10ibmoslo) / 8192}}
ExpCosSqibmoslo = ListPlot[CosSqibmoslo]
ExpDecisivenessibmoslo = ListPlot[Decisivenessibmoslo]

Out[ ]= 215

Out[ ]= 1336

Out[ ]= 6132

Out[ ]= 509

Out[ ]= 238

Out[ ]= 1762

Out[ ]= 5648

Out[ ]= 544

Out[ ]= 302

Out[ ]= 2311

Out[ ]= 4959

Out[ ]= 620

Out[ ]= 430

Out[ ]= 2820

Out[ ]= 4266

Out[ ]= 676

```

$\text{Out}[*]= 570$

$\text{Out}[*]= 3382$

$\text{Out}[*]= 3520$

$\text{Out}[*]= 720$

$\text{Out}[*]= 813$

$\text{Out}[*]= 4087$

$\text{Out}[*]= 2679$

$\text{Out}[*]= 613$

$\text{Out}[*]= 1103$

$\text{Out}[*]= 4619$

$\text{Out}[*]= 1901$

$\text{Out}[*]= 569$

$\text{Out}[*]= 1396$

$\text{Out}[*]= 4897$

$\text{Out}[*]= 1318$

$\text{Out}[*]= 581$

$\text{Out}[*]= 1742$

$\text{Out}[*]= 5076$

$\text{Out}[*]= 793$

$\text{Out}[*]= 581$

$\text{Out}[*]= 1995$

$\text{Out}[*]= 5164$

$\text{Out}[*]= 493$

$\text{Out}[*]= 540$

$\text{Out}[*]= 1985$

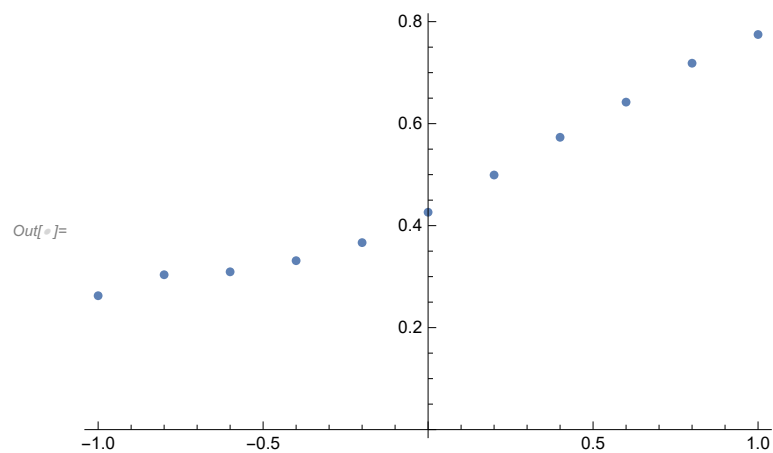
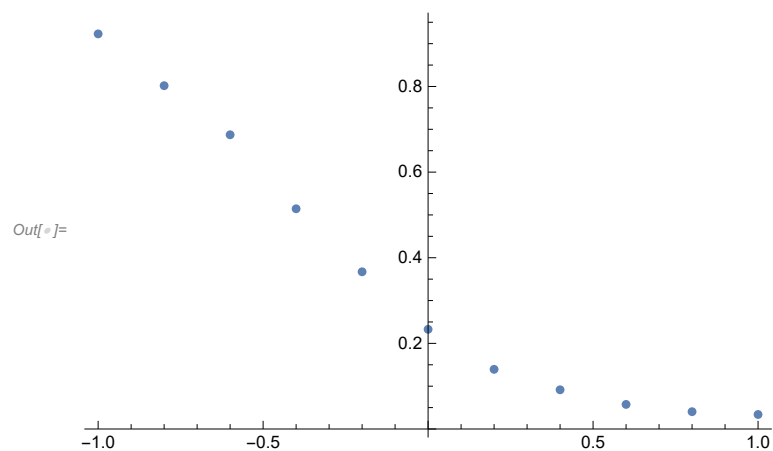
$\text{Out}[*]= 5447$

$\text{Out}[*]= 166$

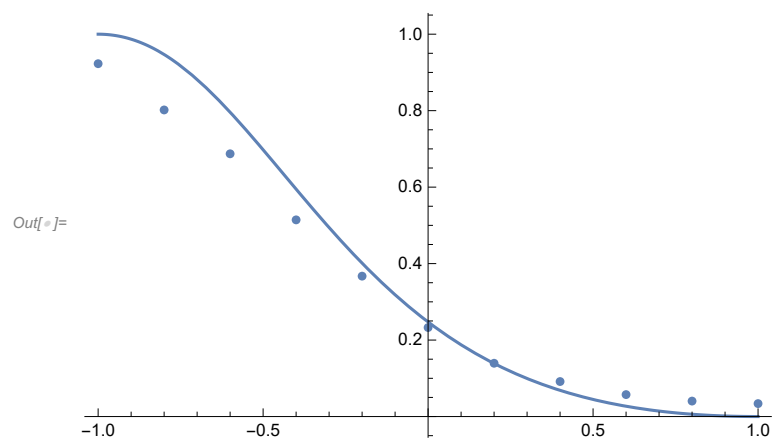
$\text{Out}[*]= 594$

$\text{Out}[*]= \left\{ \left\{ -1, \frac{1985}{2151} \right\}, \left\{ -0.8, \frac{1995}{2488} \right\}, \left\{ -0.6, \frac{134}{195} \right\}, \left\{ -0.4, \frac{698}{1357} \right\}, \left\{ -0.2, \frac{1103}{3004} \right\}, \right. \\ \left. \left\{ 0., \frac{271}{1164} \right\}, \left\{ 0.2, \frac{57}{409} \right\}, \left\{ 0.4, \frac{215}{2348} \right\}, \left\{ 0.6, \frac{302}{5261} \right\}, \left\{ 0.8, \frac{119}{2943} \right\}, \left\{ 1, \frac{215}{6347} \right\} \right\}$

Out[]:= $\left\{ \left\{ -1, \frac{2151}{8192} \right\}, \left\{ -0.8, \frac{311}{1024} \right\}, \left\{ -0.6, \frac{2535}{8192} \right\}, \left\{ -0.4, \frac{1357}{4096} \right\}, \left\{ -0.2, \frac{751}{2048} \right\}, \right.$
 $\left. \left\{ 0., \frac{873}{2048} \right\}, \left\{ 0.2, \frac{2045}{4096} \right\}, \left\{ 0.4, \frac{587}{1024} \right\}, \left\{ 0.6, \frac{5261}{8192} \right\}, \left\{ 0.8, \frac{2943}{4096} \right\}, \left\{ 1., \frac{6347}{8192} \right\} \right\}$

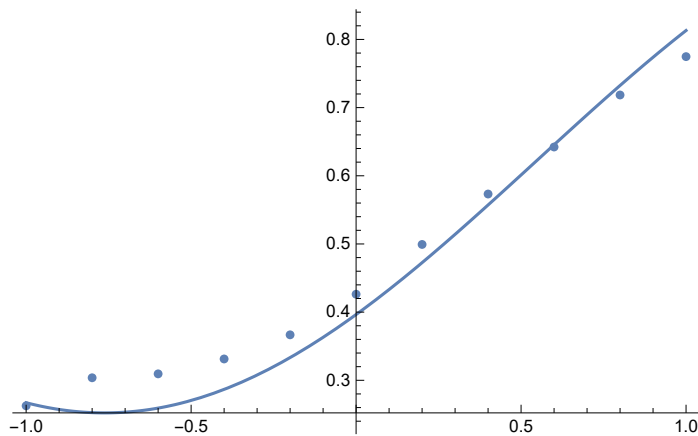


In[]:= Show[cosh, ExpCosSqibmoslo]



In[]:= Show[decTH, ExpDecisivenessibmoslo]

Out[]:=



In[]:= (*ibmq_manila*)

ZeroZeroFirst10ibmqmanila = 225
 ZeroOneFirst10ibmqmanila = 1142
 OneZeroFirst10ibmqmanila = 6036
 OneOneFirst10ibmqmanila = 789

ZeroZeroFirst08ibmqmanila = 257
 ZeroOneFirst08ibmqmanila = 1654
 OneZeroFirst08ibmqmanila = 5287
 OneOneFirst08ibmqmanila = 994

ZeroZeroFirst06ibmqmanila = 345
 ZeroOneFirst06ibmqmanila = 2414
 OneZeroFirst06ibmqmanila = 4485
 OneOneFirst06ibmqmanila = 948

ZeroZeroFirst04ibmqmanila = 504
 ZeroOneFirst04ibmqmanila = 3074
 OneZeroFirst04ibmqmanila = 3686
 OneOneFirst04ibmqmanila = 928

ZeroZeroFirst02ibmqmanila = 765
 ZeroOneFirst02ibmqmanila = 3410
 OneZeroFirst02ibmqmanila = 3138
 OneOneFirst02ibmqmanila = 879

ZeroZeroFirst00ibmqmanila = 1038
 ZeroOneFirst00ibmqmanila = 3728
 OneZeroFirst00ibmqmanila = 2343
 OneOneFirst00ibmqmanila = 1083

ZeroZeroSecond02ibmqmanila = 1423
 ZeroOneSecond02ibmqmanila = 4247
 OneZeroSecond02ibmqmanila = 1732
 OneOneSecond02ibmqmanila = 790

```

ZeroZeroSecond04ibmqmanila = 1615
ZeroOneSecond04ibmqmanila = 4574
OneZeroSecond04ibmqmanila = 1054
OneOneSecond04ibmqmanila = 949

```

```

ZeroZeroSecond06ibmqmanila = 1872
ZeroOneSecond06ibmqmanila = 4772
OneZeroSecond06ibmqmanila = 603
OneOneSecond06ibmqmanila = 945

```

```

ZeroZeroSecond08ibmqmanila = 2325
ZeroOneSecond08ibmqmanila = 5060
OneZeroSecond08ibmqmanila = 255
OneOneSecond08ibmqmanila = 552

```

```

ZeroZeroSecond10ibmqmanila = 2478
ZeroOneSecond10ibmqmanila = 5090
OneZeroSecond10ibmqmanila = 139
OneOneSecond10ibmqmanila = 485

```

```

CosSqibmqmanila = {{-1,
  ZeroZeroSecond10ibmqmanila / (OneZeroSecond10ibmqmanila + ZeroZeroSecond10ibmqmanila)},
{-0.8, ZeroZeroSecond08ibmqmanila /
  (OneZeroSecond08ibmqmanila + ZeroZeroSecond08ibmqmanila)}, {-0.6,
  ZeroZeroSecond06ibmqmanila / (OneZeroSecond06ibmqmanila + ZeroZeroSecond06ibmqmanila)},
{-0.4, ZeroZeroSecond04ibmqmanila /
  (OneZeroSecond04ibmqmanila + ZeroZeroSecond04ibmqmanila)}, {-0.2,
  ZeroZeroSecond02ibmqmanila / (OneZeroSecond02ibmqmanila + ZeroZeroSecond02ibmqmanila)},
{0.0, ZeroZeroFirst00ibmqmanila / (OneZeroFirst00ibmqmanila + ZeroZeroFirst00ibmqmanila)},
{0.2, ZeroZeroFirst02ibmqmanila / (OneZeroFirst02ibmqmanila + ZeroZeroFirst02ibmqmanila)},
{0.4, ZeroZeroFirst04ibmqmanila / (OneZeroFirst04ibmqmanila + ZeroZeroFirst04ibmqmanila)},
{0.6, ZeroZeroFirst06ibmqmanila / (OneZeroFirst06ibmqmanila + ZeroZeroFirst06ibmqmanila)},
{0.8, ZeroZeroFirst08ibmqmanila / (OneZeroFirst08ibmqmanila + ZeroZeroFirst08ibmqmanila)},
{1, ZeroZeroFirst10ibmqmanila / (OneZeroFirst10ibmqmanila + ZeroZeroFirst10ibmqmanila)}}

```

```

Decisivenessibmqmanila =
{{-1, (OneZeroSecond10ibmqmanila + ZeroZeroSecond10ibmqmanila) / 8192},
{-0.8, (OneZeroSecond08ibmqmanila + ZeroZeroSecond08ibmqmanila) / 8192},
{-0.6, (OneZeroSecond06ibmqmanila + ZeroZeroSecond06ibmqmanila) / 8192},
{-0.4, (OneZeroSecond04ibmqmanila + ZeroZeroSecond04ibmqmanila) / 8192},
{-0.2, (OneZeroSecond02ibmqmanila + ZeroZeroSecond02ibmqmanila) / 8192},
{-0.0, (OneZeroFirst00ibmqmanila + ZeroZeroFirst00ibmqmanila) / 8192},
{0.2, (OneZeroFirst02ibmqmanila + ZeroZeroFirst02ibmqmanila) / 8192},
{0.4, (OneZeroFirst04ibmqmanila + ZeroZeroFirst04ibmqmanila) / 8192},
{0.6, (OneZeroFirst06ibmqmanila + ZeroZeroFirst06ibmqmanila) / 8192},
{0.8, (OneZeroFirst08ibmqmanila + ZeroZeroFirst08ibmqmanila) / 8192},
{1.0, (OneZeroFirst10ibmqmanila + ZeroZeroFirst10ibmqmanila) / 8192}}

```

```

ExpCosSqibmqmanila = ListPlot[CosSqibmqmanila]
ExpDecisivenessibmqmanila = ListPlot[Decisivenessibmqmanila]

```

Out[]= 225

Out[]= 1142

Out[]= 6036

Out[]= 789

Out[]= 257

Out[]= 1654

Out[]= 5287

Out[]= 994

Out[]= 345

Out[]= 2414

Out[]= 4485

Out[]= 948

Out[]= 504

Out[]= 3074

Out[]= 3686

Out[]= 928

Out[]= 765

Out[]= 3410

Out[]= 3138

Out[]= 879

Out[]= 1038

Out[]= 3728

Out[]= 2343

Out[]= 1083

Out[]= 1423

Out[]= 4247

Out[]= 1732

Out[]= 790

Out[]= 1615

Out[]= 4574

Out[]= 1054

Out[]= 949

Out[]= 1872

Out[]= 4772

Out[]= 603

Out[]= 945

Out[]= 2325

Out[]= 5060

Out[]= 255

Out[]= 552

Out[]= 2478

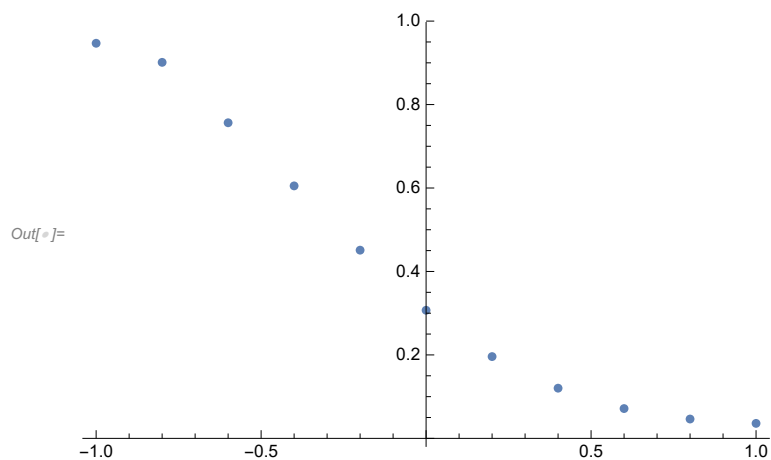
Out[]= 5090

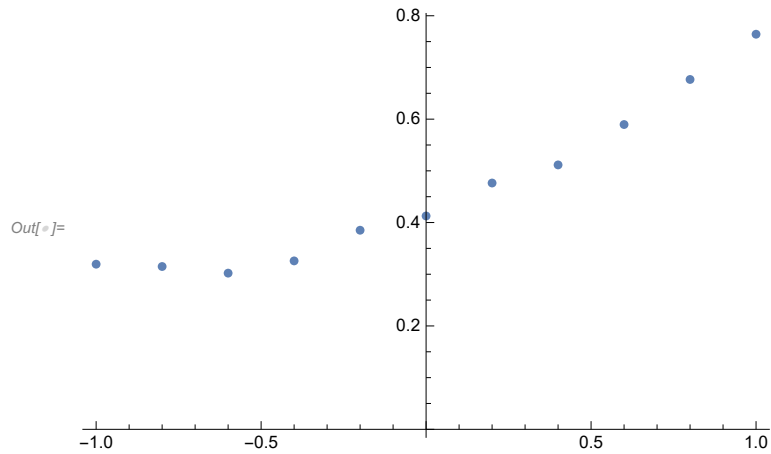
Out[]= 139

Out[]= 485

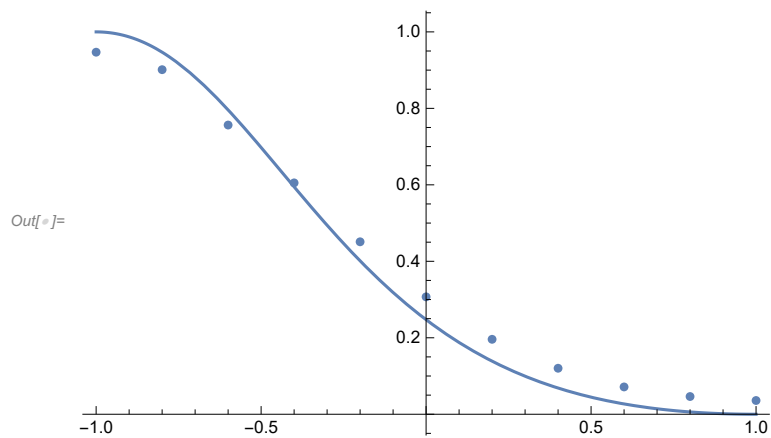
Out[]= $\left\{ \left\{ -1, \frac{2478}{2617} \right\}, \left\{ -0.8, \frac{155}{172} \right\}, \left\{ -0.6, \frac{208}{275} \right\}, \left\{ -0.4, \frac{95}{157} \right\}, \left\{ -0.2, \frac{1423}{3155} \right\}, \right.$
 $\left. \left\{ 0., \frac{346}{1127} \right\}, \left\{ 0.2, \frac{255}{1301} \right\}, \left\{ 0.4, \frac{252}{2095} \right\}, \left\{ 0.6, \frac{1}{14} \right\}, \left\{ 0.8, \frac{257}{5544} \right\}, \left\{ 1, \frac{75}{2087} \right\} \right\}$

Out[]= $\left\{ \left\{ -1, \frac{2617}{8192} \right\}, \left\{ -0.8, \frac{645}{2048} \right\}, \left\{ -0.6, \frac{2475}{8192} \right\}, \left\{ -0.4, \frac{2669}{8192} \right\}, \left\{ -0.2, \frac{3155}{8192} \right\}, \right.$
 $\left. \left\{ 0., \frac{3381}{8192} \right\}, \left\{ 0.2, \frac{3903}{8192} \right\}, \left\{ 0.4, \frac{2095}{4096} \right\}, \left\{ 0.6, \frac{2415}{4096} \right\}, \left\{ 0.8, \frac{693}{1024} \right\}, \left\{ 1., \frac{6261}{8192} \right\} \right\}$

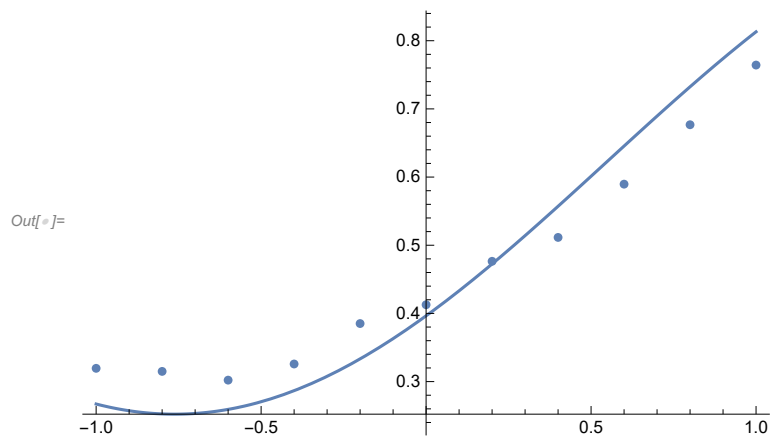




In[]:= Show[cosTH, ExpCosSqibmqmanila]



In[]:= Show[decTH, ExpDecisivenessibmqmanila]



In[]:= (*ibmq_quito*)

ZeroZeroFirst10ibmqquito = 649

ZeroOneFirst10ibmqquito = 1093

OneZeroFirst10ibmqquito = 5939

OneOneFirst10ibmqquito = 511

ZeroZeroFirst08ibmqquito = 774

```
ZeroOneFirst08ibmqquito = 1649
OneZeroFirst08ibmqquito = 5245
OneOneFirst08ibmqquito = 524
```

```
ZeroZeroFirst06ibmqquito = 1002
ZeroOneFirst06ibmqquito = 2239
OneZeroFirst06ibmqquito = 4400
OneOneFirst06ibmqquito = 551
```

```
ZeroZeroFirst04ibmqquito = 1060
ZeroOneFirst04ibmqquito = 2949
OneZeroFirst04ibmqquito = 3605
OneOneFirst04ibmqquito = 578
```

```
ZeroZeroFirst02ibmqquito = 1319
ZeroOneFirst02ibmqquito = 3596
OneZeroFirst02ibmqquito = 2729
OneOneFirst02ibmqquito = 548
```

```
ZeroZeroFirst00ibmqquito = 1529
ZeroOneFirst00ibmqquito = 4321
OneZeroFirst00ibmqquito = 1871
OneOneFirst00ibmqquito = 471
```

```
ZeroZeroSecond02ibmqquito = 1770
ZeroOneSecond02ibmqquito = 4729
OneZeroSecond02ibmqquito = 1229
OneOneSecond02ibmqquito = 464
```

```
ZeroZeroSecond04ibmqquito = 2007
ZeroOneSecond04ibmqquito = 5017
OneZeroSecond04ibmqquito = 744
OneOneSecond04ibmqquito = 424
```

```
ZeroZeroSecond06ibmqquito = 2233
ZeroOneSecond06ibmqquito = 5224
OneZeroSecond06ibmqquito = 339
OneOneSecond06ibmqquito = 396
```

```
ZeroZeroSecond08ibmqquito = 2441
ZeroOneSecond08ibmqquito = 5240
OneZeroSecond08ibmqquito = 142
OneOneSecond08ibmqquito = 369
```

```
ZeroZeroSecond10ibmqquito = 2587
ZeroOneSecond10ibmqquito = 5126
OneZeroSecond10ibmqquito = 152
OneOneSecond10ibmqquito = 327
```

```
CosSqibmqquito =
{ {-1, ZeroZeroSecond10ibmqquito / (OneZeroSecond10ibmqquito + ZeroZeroSecond10ibmqquito)},
```

```

{-0.8, ZeroZeroSecond08ibmqquito /
  (OneZeroSecond08ibmqquito + ZeroZeroSecond08ibmqquito)}, {-0.6,
  ZeroZeroSecond06ibmqquito / (OneZeroSecond06ibmqquito + ZeroZeroSecond06ibmqquito)},
{-0.4, ZeroZeroSecond04ibmqquito /
  (OneZeroSecond04ibmqquito + ZeroZeroSecond04ibmqquito)}, {-0.2,
  ZeroZeroSecond02ibmqquito / (OneZeroSecond02ibmqquito + ZeroZeroSecond02ibmqquito)},
{0.0, ZeroZeroFirst00ibmqquito / (OneZeroFirst00ibmqquito + ZeroZeroFirst00ibmqquito)},
{0.2, ZeroZeroFirst02ibmqquito / (OneZeroFirst02ibmqquito + ZeroZeroFirst02ibmqquito)},
{0.4, ZeroZeroFirst04ibmqquito / (OneZeroFirst04ibmqquito + ZeroZeroFirst04ibmqquito)},
{0.6, ZeroZeroFirst06ibmqquito / (OneZeroFirst06ibmqquito + ZeroZeroFirst06ibmqquito)},
{0.8, ZeroZeroFirst08ibmqquito / (OneZeroFirst08ibmqquito + ZeroZeroFirst08ibmqquito)},
{1, ZeroZeroFirst10ibmqquito / (OneZeroFirst10ibmqquito + ZeroZeroFirst10ibmqquito)}}
Decisivenessibmqquito =
{{-1, (OneZeroSecond10ibmqquito + ZeroZeroSecond10ibmqquito) / 8192},
{-0.8, (OneZeroSecond08ibmqquito + ZeroZeroSecond08ibmqquito) / 8192},
{-0.6, (OneZeroSecond06ibmqquito + ZeroZeroSecond06ibmqquito) / 8192},
{-0.4, (OneZeroSecond04ibmqquito + ZeroZeroSecond04ibmqquito) / 8192},
{-0.2, (OneZeroSecond02ibmqquito + ZeroZeroSecond02ibmqquito) / 8192},
{-0.0, (OneZeroFirst00ibmqquito + ZeroZeroFirst00ibmqquito) / 8192},
{0.2, (OneZeroFirst02ibmqquito + ZeroZeroFirst02ibmqquito) / 8192},
{0.4, (OneZeroFirst04ibmqquito + ZeroZeroFirst04ibmqquito) / 8192},
{0.6, (OneZeroFirst06ibmqquito + ZeroZeroFirst06ibmqquito) / 8192},
{0.8, (OneZeroFirst08ibmqquito + ZeroZeroFirst08ibmqquito) / 8192},
{1.0, (OneZeroFirst10ibmqquito + ZeroZeroFirst10ibmqquito) / 8192}}
ExpCosSqibmqquito = ListPlot[CosSqibmqquito]
ExpDecisivenessibmqquito = ListPlot[Decisivenessibmqquito]

```

Out[6]= 649

Out[7]= 1093

Out[8]= 5939

Out[9]= 511

Out[10]= 774

Out[11]= 1649

Out[12]= 5245

Out[13]= 524

Out[14]= 1002

Out[15]= 2239

Out[16]= 4400

Out[17]= 551

Out[18]= 1060

Out[19]= 2949

Out[]= 3605

Out[]= 578

Out[]= 1319

Out[]= 3596

Out[]= 2729

Out[]= 548

Out[]= 1529

Out[]= 4321

Out[]= 1871

Out[]= 471

Out[]= 1770

Out[]= 4729

Out[]= 1229

Out[]= 464

Out[]= 2007

Out[]= 5017

Out[]= 744

Out[]= 424

Out[]= 2233

Out[]= 5224

Out[]= 339

Out[]= 396

Out[]= 2441

Out[]= 5240

Out[]= 142

Out[]= 369

Out[]= 2587

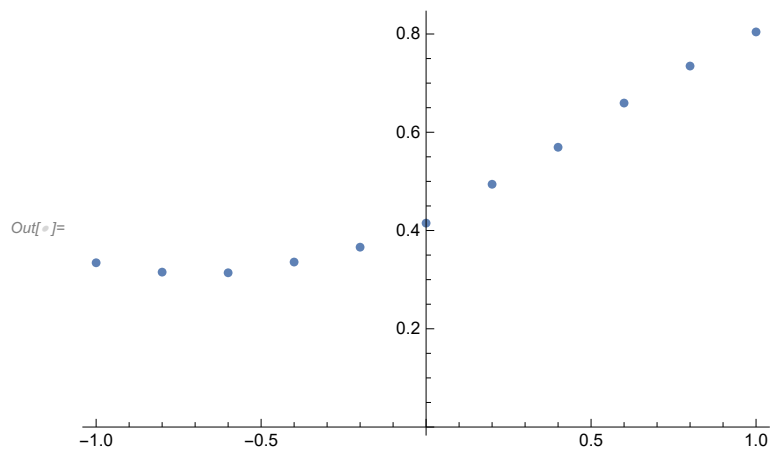
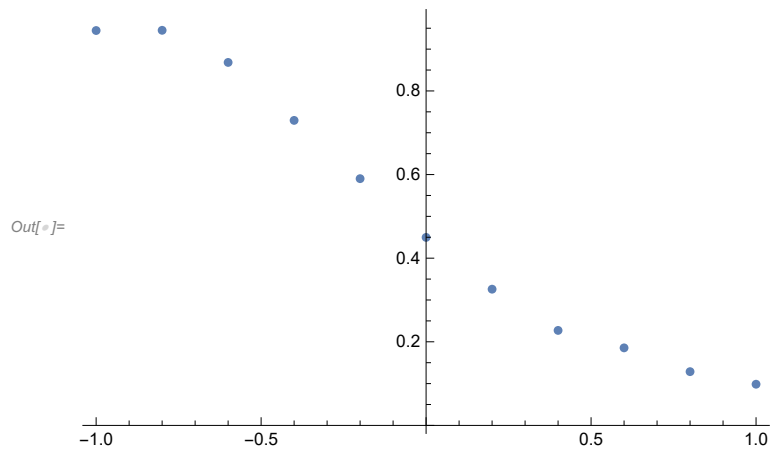
Out[]= 5126

Out[]= 152

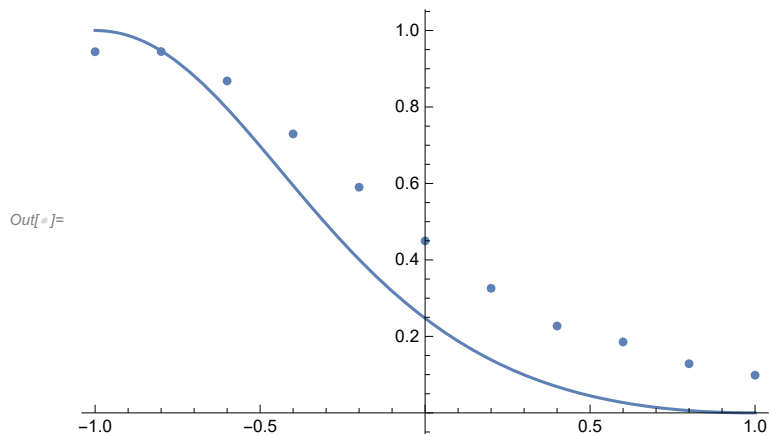
Out[]= 327

$$\text{Out}[*]= \left\{ \left\{ -1, \frac{2587}{2739} \right\}, \left\{ -0.8, \frac{2441}{2583} \right\}, \left\{ -0.6, \frac{2233}{2572} \right\}, \left\{ -0.4, \frac{669}{917} \right\}, \left\{ -0.2, \frac{1770}{2999} \right\}, \right. \\ \left. \left\{ 0., \frac{1529}{3400} \right\}, \left\{ 0.2, \frac{1319}{4048} \right\}, \left\{ 0.4, \frac{212}{933} \right\}, \left\{ 0.6, \frac{501}{2701} \right\}, \left\{ 0.8, \frac{774}{6019} \right\}, \left\{ 1, \frac{649}{6588} \right\} \right\}$$

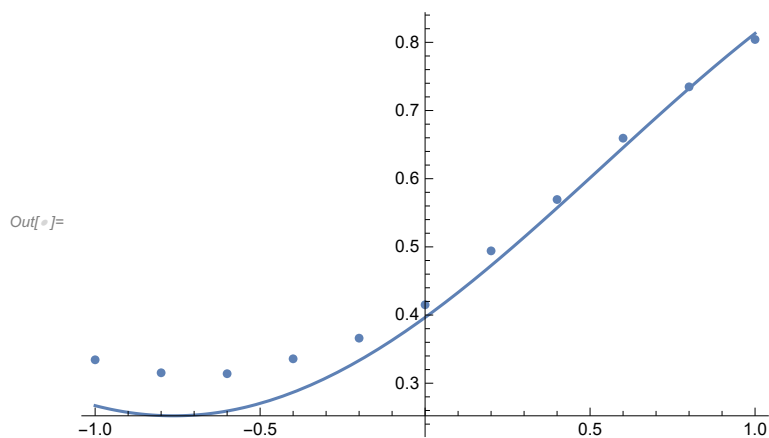
$$\text{Out}[*]= \left\{ \left\{ -1, \frac{2739}{8192} \right\}, \left\{ -0.8, \frac{2583}{8192} \right\}, \left\{ -0.6, \frac{643}{2048} \right\}, \left\{ -0.4, \frac{2751}{8192} \right\}, \left\{ -0.2, \frac{2999}{8192} \right\}, \right. \\ \left. \left\{ 0., \frac{425}{1024} \right\}, \left\{ 0.2, \frac{253}{512} \right\}, \left\{ 0.4, \frac{4665}{8192} \right\}, \left\{ 0.6, \frac{2701}{4096} \right\}, \left\{ 0.8, \frac{6019}{8192} \right\}, \left\{ 1., \frac{1647}{2048} \right\} \right\}$$



In[]:= Show[cosTH, ExpCosSqibmqquito]



In[]:= Show[decTH, ExpDecisivenessibmqquito]



In[]:= (*ibmq_lima*)

ZeroZeroFirst10ibmqlima = 286
 ZeroOneFirst10ibmqlima = 1321
 OneZeroFirst10ibmqlima = 6188
 OneOneFirst10ibmqlima = 397

ZeroZeroFirst08ibmqlima = 391
 ZeroOneFirst08ibmqlima = 1840
 OneZeroFirst08ibmqlima = 5547
 OneOneFirst08ibmqlima = 414

ZeroZeroFirst06ibmqlima = 487
 ZeroOneFirst06ibmqlima = 2351
 OneZeroFirst06ibmqlima = 4878
 OneOneFirst06ibmqlima = 476

ZeroZeroFirst04ibmqlima = 720
 ZeroOneFirst04ibmqlima = 2954
 OneZeroFirst04ibmqlima = 3965
 OneOneFirst04ibmqlima = 553

ZeroZeroFirst02ibmqLima = 923
 ZeroOneFirst02ibmqLima = 3569
 OneZeroFirst02ibmqLima = 3108
 OneOneFirst02ibmqLima = 592

ZeroZeroFirst00ibmqLima = 1122
 ZeroOneFirst00ibmqLima = 4105
 OneZeroFirst00ibmqLima = 2292
 OneOneFirst00ibmqLima = 673

ZeroZeroSecond02ibmqLima = 1513
 ZeroOneSecond02ibmqLima = 4664
 OneZeroSecond02ibmqLima = 1428
 OneOneSecond02ibmqLima = 587

ZeroZeroSecond04ibmqLima = 1705
 ZeroOneSecond04ibmqLima = 4965
 OneZeroSecond04ibmqLima = 948
 OneOneSecond04ibmqLima = 574

ZeroZeroSecond06ibmqLima = 1999
 ZeroOneSecond06ibmqLima = 5239
 OneZeroSecond06ibmqLima = 460
 OneOneSecond06ibmqLima = 494

ZeroZeroSecond08ibmqLima = 2243
 ZeroOneSecond08ibmqLima = 5319
 OneZeroSecond08ibmqLima = 163
 OneOneSecond08ibmqLima = 467

ZeroZeroSecond10ibmqLima = 2491
 ZeroOneSecond10ibmqLima = 5279
 OneZeroSecond10ibmqLima = 74
 OneOneSecond10ibmqLima = 348

CosSqibmqLima =

$\{ \{-1, \text{ZeroZeroSecond10ibmqLima} / (\text{OneZeroSecond10ibmqLima} + \text{ZeroZeroSecond10ibmqLima})\},$
 $\{-0.8, \text{ZeroZeroSecond08ibmqLima} / (\text{OneZeroSecond08ibmqLima} + \text{ZeroZeroSecond08ibmqLima})\},$
 $\{-0.6, \text{ZeroZeroSecond06ibmqLima} / (\text{OneZeroSecond06ibmqLima} + \text{ZeroZeroSecond06ibmqLima})\},$
 $\{-0.4, \text{ZeroZeroSecond04ibmqLima} / (\text{OneZeroSecond04ibmqLima} + \text{ZeroZeroSecond04ibmqLima})\},$
 $\{-0.2, \text{ZeroZeroSecond02ibmqLima} / (\text{OneZeroSecond02ibmqLima} + \text{ZeroZeroSecond02ibmqLima})\},$
 $\{0.0, \text{ZeroZeroFirst00ibmqLima} / (\text{OneZeroFirst00ibmqLima} + \text{ZeroZeroFirst00ibmqLima})\},$
 $\{0.2, \text{ZeroZeroFirst02ibmqLima} / (\text{OneZeroFirst02ibmqLima} + \text{ZeroZeroFirst02ibmqLima})\},$
 $\{0.4, \text{ZeroZeroFirst04ibmqLima} / (\text{OneZeroFirst04ibmqLima} + \text{ZeroZeroFirst04ibmqLima})\},$
 $\{0.6, \text{ZeroZeroFirst06ibmqLima} / (\text{OneZeroFirst06ibmqLima} + \text{ZeroZeroFirst06ibmqLima})\},$
 $\{0.8, \text{ZeroZeroFirst08ibmqLima} / (\text{OneZeroFirst08ibmqLima} + \text{ZeroZeroFirst08ibmqLima})\},$
 $\{1, \text{ZeroZeroFirst10ibmqLima} / (\text{OneZeroFirst10ibmqLima} + \text{ZeroZeroFirst10ibmqLima})\} \}$

DecisivenessibmqLima = $\{ \{-1, (\text{OneZeroSecond10ibmqLima} + \text{ZeroZeroSecond10ibmqLima}) / 8192\},$
 $\{-0.8, (\text{OneZeroSecond08ibmqLima} + \text{ZeroZeroSecond08ibmqLima}) / 8192\},$
 $\{-0.6, (\text{OneZeroSecond06ibmqLima} + \text{ZeroZeroSecond06ibmqLima}) / 8192\},$

```

{-0.4, (OneZeroSecond04ibmq1ima + ZeroZeroSecond04ibmq1ima) / 8192},
{-0.2, (OneZeroSecond02ibmq1ima + ZeroZeroSecond02ibmq1ima) / 8192},
{-0.0, (OneZeroFirst00ibmq1ima + ZeroZeroFirst00ibmq1ima) / 8192},
{0.2, (OneZeroFirst02ibmq1ima + ZeroZeroFirst02ibmq1ima) / 8192},
{0.4, (OneZeroFirst04ibmq1ima + ZeroZeroFirst04ibmq1ima) / 8192},
{0.6, (OneZeroFirst06ibmq1ima + ZeroZeroFirst06ibmq1ima) / 8192},
{0.8, (OneZeroFirst08ibmq1ima + ZeroZeroFirst08ibmq1ima) / 8192},
{1.0, (OneZeroFirst10ibmq1ima + ZeroZeroFirst10ibmq1ima) / 8192}}
ExpCosSqibmq1ima = ListPlot[CosSqibmq1ima]
ExpDecisivenessibmq1ima = ListPlot[Decisivenessibmq1ima]

```

Out[]= 286

Out[]= 1321

Out[]= 6188

Out[]= 397

Out[]= 391

Out[]= 1840

Out[]= 5547

Out[]= 414

Out[]= 487

Out[]= 2351

Out[]= 4878

Out[]= 476

Out[]= 720

Out[]= 2954

Out[]= 3965

Out[]= 553

Out[]= 923

Out[]= 3569

Out[]= 3108

Out[]= 592

Out[]= 1122

Out[]= 4105

Out[]= 2292

Out[]= 673

$$\text{Out}[*]= 1513$$

$$\text{Out}[*]= 4664$$

$$\text{Out}[*]= 1428$$

$$\text{Out}[*]= 587$$

$$\text{Out}[*]= 1705$$

$$\text{Out}[*]= 4965$$

$$\text{Out}[*]= 948$$

$$\text{Out}[*]= 574$$

$$\text{Out}[*]= 1999$$

$$\text{Out}[*]= 5239$$

$$\text{Out}[*]= 460$$

$$\text{Out}[*]= 494$$

$$\text{Out}[*]= 2243$$

$$\text{Out}[*]= 5319$$

$$\text{Out}[*]= 163$$

$$\text{Out}[*]= 467$$

$$\text{Out}[*]= 2491$$

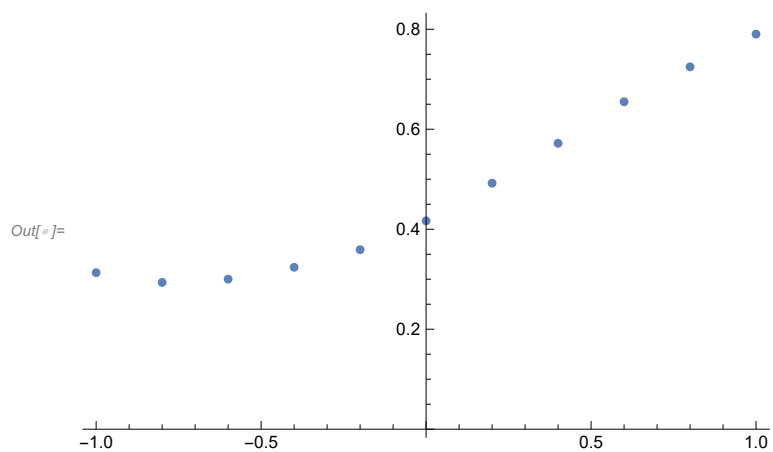
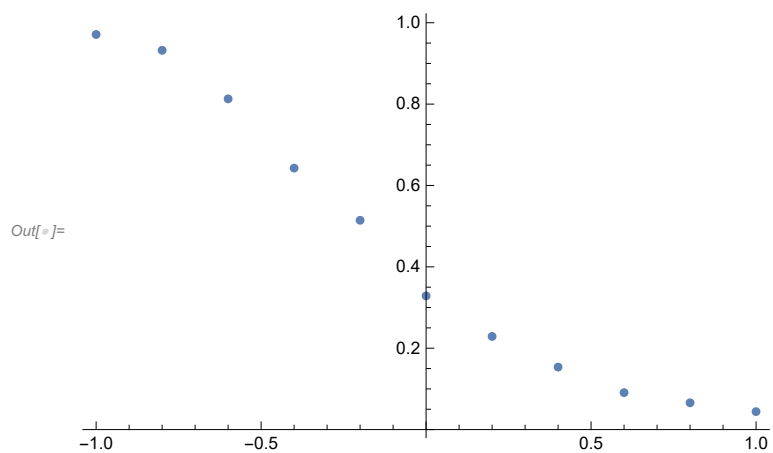
$$\text{Out}[*]= 5279$$

$$\text{Out}[*]= 74$$

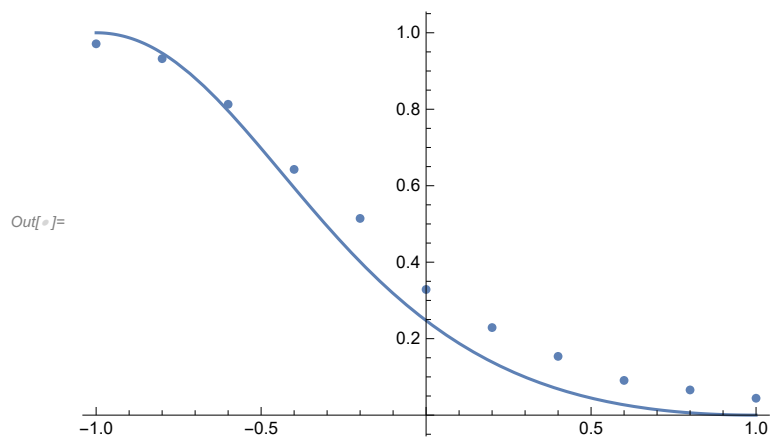
$$\text{Out}[*]= 348$$

$$\text{Out}[*]= \left\{ \left\{ -1, \frac{2491}{2565} \right\}, \left\{ -0.8, \frac{2243}{2406} \right\}, \left\{ -0.6, \frac{1999}{2459} \right\}, \left\{ -0.4, \frac{1705}{2653} \right\}, \left\{ -0.2, \frac{89}{173} \right\}, \right. \\ \left. \left\{ 0., \frac{187}{569} \right\}, \left\{ 0.2, \frac{923}{4031} \right\}, \left\{ 0.4, \frac{144}{937} \right\}, \left\{ 0.6, \frac{487}{5365} \right\}, \left\{ 0.8, \frac{391}{5938} \right\}, \left\{ 1, \frac{11}{249} \right\} \right\}$$

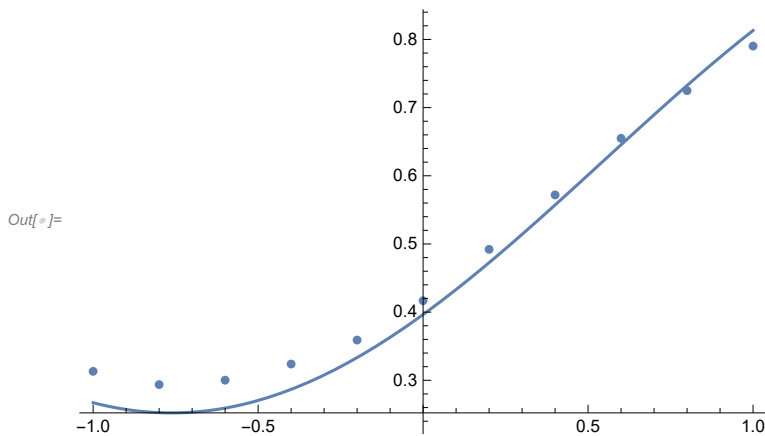
$$\text{Out}[*]= \left\{ \left\{ -1, \frac{2565}{8192} \right\}, \left\{ -0.8, \frac{1203}{4096} \right\}, \left\{ -0.6, \frac{2459}{8192} \right\}, \left\{ -0.4, \frac{2653}{8192} \right\}, \left\{ -0.2, \frac{2941}{8192} \right\}, \right. \\ \left. \left\{ 0., \frac{1707}{4096} \right\}, \left\{ 0.2, \frac{4031}{8192} \right\}, \left\{ 0.4, \frac{4685}{8192} \right\}, \left\{ 0.6, \frac{5365}{8192} \right\}, \left\{ 0.8, \frac{2969}{4096} \right\}, \left\{ 1., \frac{3237}{4096} \right\} \right\}$$



In[]:= Show[cosTH, ExpCosSqibmqlima]



In[]:= Show[decTH, ExpDecisivenessibmqIima]



In[]:= (*ibmq_qasm_simulator*)

```
ZeroZeroFirst10ibmqqasmsimulator = 0
ZeroOneFirst10ibmqqasmsimulator = 1200
OneZeroFirst10ibmqqasmsimulator = 6701
OneOneFirst10ibmqqasmsimulator = 291
```

```
ZeroZeroFirst08ibmqqasmsimulator = 28
ZeroOneFirst08ibmqqasmsimulator = 1838
OneZeroFirst08ibmqqasmsimulator = 5959
OneOneFirst08ibmqqasmsimulator = 367
```

```
ZeroZeroFirst06ibmqqasmsimulator = 132
ZeroOneFirst06ibmqqasmsimulator = 2519
OneZeroFirst06ibmqqasmsimulator = 5127
OneOneFirst06ibmqqasmsimulator = 414
```

```
ZeroZeroFirst04ibmqqasmsimulator = 292
ZeroOneFirst04ibmqqasmsimulator = 3161
OneZeroFirst04ibmqqasmsimulator = 4277
OneOneFirst04ibmqqasmsimulator = 462
```

```
ZeroZeroFirst02ibmqqasmsimulator = 546
ZeroOneFirst02ibmqqasmsimulator = 3871
OneZeroFirst02ibmqqasmsimulator = 3311
OneOneFirst02ibmqqasmsimulator = 464
```

```
ZeroZeroFirst00ibmqqasmsimulator = 826
ZeroOneFirst00ibmqqasmsimulator = 4407
OneZeroFirst00ibmqqasmsimulator = 2468
OneOneFirst00ibmqqasmsimulator = 491
```

```
ZeroZeroSecond02ibmqqasmsimulator = 1102
ZeroOneSecond02ibmqqasmsimulator = 4925
OneZeroSecond02ibmqqasmsimulator = 1672
OneOneSecond02ibmqqasmsimulator = 493
```

```

ZeroZeroSecond04ibmqqasmsimulator = 1381
ZeroOneSecond04ibmqqasmsimulator = 5411
OneZeroSecond04ibmqqasmsimulator = 904
OneOneSecond04ibmqqasmsimulator = 496

```

```

ZeroZeroSecond06ibmqqasmsimulator = 1719
ZeroOneSecond06ibmqqasmsimulator = 5538
OneZeroSecond06ibmqqasmsimulator = 455
OneOneSecond06ibmqqasmsimulator = 480

```

```

ZeroZeroSecond08ibmqqasmsimulator = 2014
ZeroOneSecond08ibmqqasmsimulator = 5610
OneZeroSecond08ibmqqasmsimulator = 107
OneOneSecond08ibmqqasmsimulator = 461

```

```

ZeroZeroSecond10ibmqqasmsimulator = 2124
ZeroOneSecond10ibmqqasmsimulator = 5672
OneZeroSecond10ibmqqasmsimulator = 0
OneOneSecond10ibmqqasmsimulator = 396

```

```

CosSqibmqqasmsimulator = {{-1, ZeroZeroSecond10ibmqqasmsimulator /
  (OneZeroSecond10ibmqqasmsimulator + ZeroZeroSecond10ibmqqasmsimulator)},
  {-0.8, ZeroZeroSecond08ibmqqasmsimulator /
  (OneZeroSecond08ibmqqasmsimulator + ZeroZeroSecond08ibmqqasmsimulator)},
  {-0.6, ZeroZeroSecond06ibmqqasmsimulator /
  (OneZeroSecond06ibmqqasmsimulator + ZeroZeroSecond06ibmqqasmsimulator)},
  {-0.4, ZeroZeroSecond04ibmqqasmsimulator /
  (OneZeroSecond04ibmqqasmsimulator + ZeroZeroSecond04ibmqqasmsimulator)},
  {-0.2, ZeroZeroSecond02ibmqqasmsimulator /
  (OneZeroSecond02ibmqqasmsimulator + ZeroZeroSecond02ibmqqasmsimulator)},
  {0.0, ZeroZeroFirst00ibmqqasmsimulator /
  (OneZeroFirst00ibmqqasmsimulator + ZeroZeroFirst00ibmqqasmsimulator)},
  {0.2, ZeroZeroFirst02ibmqqasmsimulator /
  (OneZeroFirst02ibmqqasmsimulator + ZeroZeroFirst02ibmqqasmsimulator)},
  {0.4, ZeroZeroFirst04ibmqqasmsimulator /
  (OneZeroFirst04ibmqqasmsimulator + ZeroZeroFirst04ibmqqasmsimulator)},
  {0.6, ZeroZeroFirst06ibmqqasmsimulator /
  (OneZeroFirst06ibmqqasmsimulator + ZeroZeroFirst06ibmqqasmsimulator)},
  {0.8, ZeroZeroFirst08ibmqqasmsimulator / (OneZeroFirst08ibmqqasmsimulator +
  ZeroZeroFirst08ibmqqasmsimulator)}, {1, ZeroZeroFirst10ibmqqasmsimulator /
  (OneZeroFirst10ibmqqasmsimulator + ZeroZeroFirst10ibmqqasmsimulator)}}

```

```

Decisivenessibmqqasmsimulator =
{{-1, (OneZeroSecond10ibmqqasmsimulator + ZeroZeroSecond10ibmqqasmsimulator) / 8192},
 {-0.8, (OneZeroSecond08ibmqqasmsimulator + ZeroZeroSecond08ibmqqasmsimulator) / 8192},
 {-0.6, (OneZeroSecond06ibmqqasmsimulator + ZeroZeroSecond06ibmqqasmsimulator) / 8192},
 {-0.4, (OneZeroSecond04ibmqqasmsimulator + ZeroZeroSecond04ibmqqasmsimulator) / 8192},
 {-0.2, (OneZeroSecond02ibmqqasmsimulator + ZeroZeroSecond02ibmqqasmsimulator) / 8192},
 {-0.0, (OneZeroFirst00ibmqqasmsimulator + ZeroZeroFirst00ibmqqasmsimulator) / 8192},
 {0.2, (OneZeroFirst02ibmqqasmsimulator + ZeroZeroFirst02ibmqqasmsimulator) / 8192},

```



```
{0.4, (OneZeroFirst04ibmqqasmsimulator + ZeroZeroFirst04ibmqqasmsimulator) / 8192},
{0.6, (OneZeroFirst06ibmqqasmsimulator + ZeroZeroFirst06ibmqqasmsimulator) / 8192},
{0.8, (OneZeroFirst08ibmqqasmsimulator + ZeroZeroFirst08ibmqqasmsimulator) / 8192},
{1.0, (OneZeroFirst10ibmqqasmsimulator + ZeroZeroFirst10ibmqqasmsimulator) / 8192}}
```

```
ExpCosSqibmqqasmsimulator = ListPlot[CosSqibmqqasmsimulator]
```

```
ExpDecisivenessibmqqasmsimulator = ListPlot[Decisivenessibmqqasmsimulator]
```

```
Out[ ]= 0
```

```
Out[ ]= 1200
```

```
Out[ ]= 6701
```

```
Out[ ]= 291
```

```
Out[ ]= 28
```

```
Out[ ]= 1838
```

```
Out[ ]= 5959
```

```
Out[ ]= 367
```

```
Out[ ]= 132
```

```
Out[ ]= 2519
```

```
Out[ ]= 5127
```

```
Out[ ]= 414
```

```
Out[ ]= 292
```

```
Out[ ]= 3161
```

```
Out[ ]= 4277
```

```
Out[ ]= 462
```

```
Out[ ]= 546
```

```
Out[ ]= 3871
```

```
Out[ ]= 3311
```

```
Out[ ]= 464
```

```
Out[ ]= 826
```

```
Out[ ]= 4407
```

```
Out[ ]= 2468
```

```
Out[ ]= 491
```

```
Out[ ]= 1102
```

```
Out[ ]= 4925
```

```
Out[ ]= 1672
```

Out[]= 493

Out[]= 1381

Out[]= 5411

Out[]= 904

Out[]= 496

Out[]= 1719

Out[]= 5538

Out[]= 455

Out[]= 480

Out[]= 2014

Out[]= 5610

Out[]= 107

Out[]= 461

Out[]= 2124

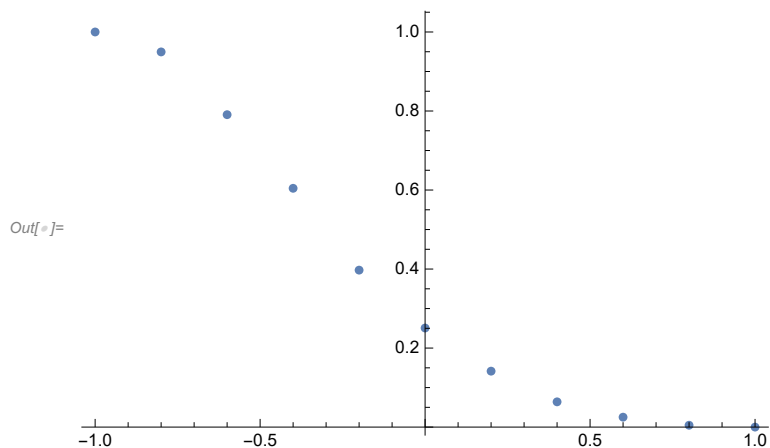
Out[]= 5672

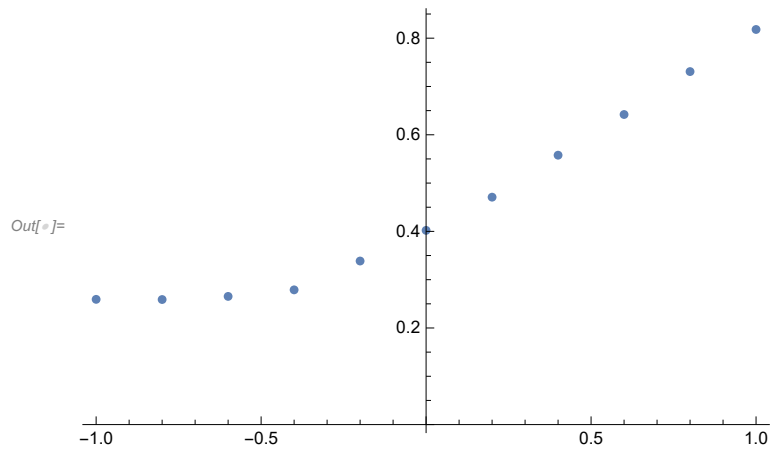
Out[]= 0

Out[]= 396

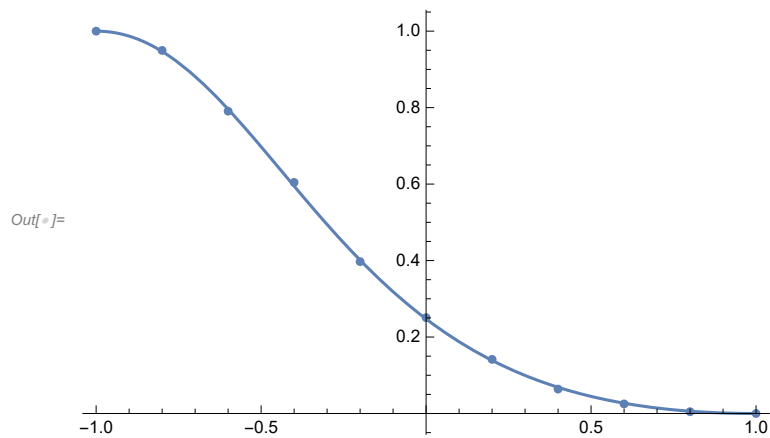
Out[]= $\left\{ \left\{ -1, 1 \right\}, \left\{ -0.8, \frac{2014}{2121} \right\}, \left\{ -0.6, \frac{1719}{2174} \right\}, \left\{ -0.4, \frac{1381}{2285} \right\}, \left\{ -0.2, \frac{29}{73} \right\}, \right.$
 $\left. \left\{ 0., \frac{413}{1647} \right\}, \left\{ 0.2, \frac{78}{551} \right\}, \left\{ 0.4, \frac{292}{4569} \right\}, \left\{ 0.6, \frac{44}{1753} \right\}, \left\{ 0.8, \frac{28}{5987} \right\}, \left\{ 1, 0 \right\} \right\}$

Out[]= $\left\{ \left\{ -1, \frac{531}{2048} \right\}, \left\{ -0.8, \frac{2121}{8192} \right\}, \left\{ -0.6, \frac{1087}{4096} \right\}, \left\{ -0.4, \frac{2285}{8192} \right\}, \left\{ -0.2, \frac{1387}{4096} \right\}, \right.$
 $\left. \left\{ 0., \frac{1647}{4096} \right\}, \left\{ 0.2, \frac{3857}{8192} \right\}, \left\{ 0.4, \frac{4569}{8192} \right\}, \left\{ 0.6, \frac{5259}{8192} \right\}, \left\{ 0.8, \frac{5987}{8192} \right\}, \left\{ 1., \frac{6701}{8192} \right\} \right\}$

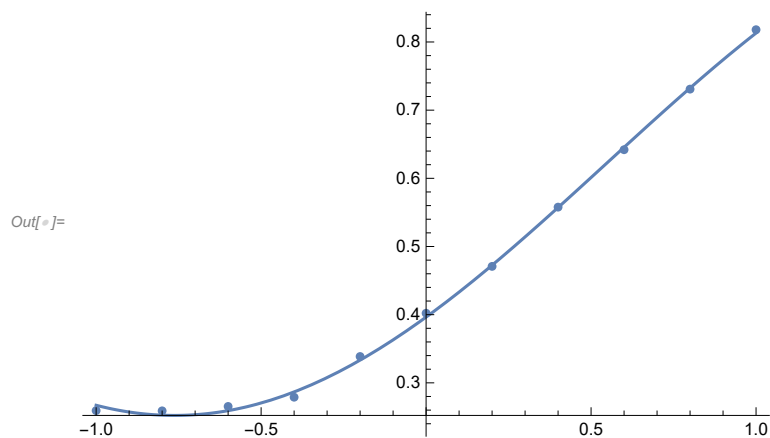




In[]:= Show[cosTH, ExpCosSqibmqqasmsimulator]



In[]:= Show[decTH, ExpDecisivenessibmqqasmsimulator]



In[]:= (*ibmq_belem*)

ZeroZeroFirst10ibmqbelem = 652

ZeroOneFirst10ibmqbelem = 1144

OneZeroFirst10ibmqbelem = 5682

OneOneFirst10ibmqbelem = 714

ZeroZeroFirst08ibmqbelem = 646

ZeroOneFirst08ibmqbelem = 1567
 OneZeroFirst08ibmqbelem = 5135
 OneOneFirst08ibmqbelem = 844

ZeroZeroFirst06ibmqbelem = 740
 ZeroOneFirst06ibmqbelem = 2108
 OneZeroFirst06ibmqbelem = 4552
 OneOneFirst06ibmqbelem = 792

ZeroZeroFirst04ibmqbelem = 871
 ZeroOneFirst04ibmqbelem = 2757
 OneZeroFirst04ibmqbelem = 3744
 OneOneFirst04ibmqbelem = 820

ZeroZeroFirst02ibmqbelem = 976
 ZeroOneFirst02ibmqbelem = 3302
 OneZeroFirst02ibmqbelem = 3150
 OneOneFirst02ibmqbelem = 764

ZeroZeroFirst00ibmqbelem = 1247
 ZeroOneFirst00ibmqbelem = 3764
 OneZeroFirst00ibmqbelem = 2391
 OneOneFirst00ibmqbelem = 790

ZeroZeroSecond02ibmqbelem = 1515
 ZeroOneSecond02ibmqbelem = 4201
 OneZeroSecond02ibmqbelem = 1729
 OneOneSecond02ibmqbelem = 747

ZeroZeroSecond04ibmqbelem = 1698
 ZeroOneSecond04ibmqbelem = 4535
 OneZeroSecond04ibmqbelem = 1220
 OneOneSecond04ibmqbelem = 739

ZeroZeroSecond06ibmqbelem = 1866
 ZeroOneSecond06ibmqbelem = 4914
 OneZeroSecond06ibmqbelem = 724
 OneOneSecond06ibmqbelem = 688

ZeroZeroSecond08ibmqbelem = 2072
 ZeroOneSecond08ibmqbelem = 5018
 OneZeroSecond08ibmqbelem = 471
 OneOneSecond08ibmqbelem = 631

ZeroZeroSecond10ibmqbelem = 2186
 ZeroOneSecond10ibmqbelem = 5099
 OneZeroSecond10ibmqbelem = 282
 OneOneSecond10ibmqbelem = 625

CosSqibmqbelem =
 $\{-1, \text{ZeroZeroSecond10ibmqbelem} / (\text{OneZeroSecond10ibmqbelem} + \text{ZeroZeroSecond10ibmqbelem})\},$

```

{-0.8, ZeroZeroSecond08ibmqbelem /
  (OneZeroSecond08ibmqbelem + ZeroZeroSecond08ibmqbelem)}, {-0.6,
  ZeroZeroSecond06ibmqbelem / (OneZeroSecond06ibmqbelem + ZeroZeroSecond06ibmqbelem)},
{-0.4, ZeroZeroSecond04ibmqbelem /
  (OneZeroSecond04ibmqbelem + ZeroZeroSecond04ibmqbelem)}, {-0.2,
  ZeroZeroSecond02ibmqbelem / (OneZeroSecond02ibmqbelem + ZeroZeroSecond02ibmqbelem)},
{0.0, ZeroZeroFirst00ibmqbelem / (OneZeroFirst00ibmqbelem + ZeroZeroFirst00ibmqbelem)},
{0.2, ZeroZeroFirst02ibmqbelem / (OneZeroFirst02ibmqbelem + ZeroZeroFirst02ibmqbelem)},
{0.4, ZeroZeroFirst04ibmqbelem / (OneZeroFirst04ibmqbelem + ZeroZeroFirst04ibmqbelem)},
{0.6, ZeroZeroFirst06ibmqbelem / (OneZeroFirst06ibmqbelem + ZeroZeroFirst06ibmqbelem)},
{0.8, ZeroZeroFirst08ibmqbelem / (OneZeroFirst08ibmqbelem + ZeroZeroFirst08ibmqbelem)},
{1, ZeroZeroFirst10ibmqbelem / (OneZeroFirst10ibmqbelem + ZeroZeroFirst10ibmqbelem)}}
Decisivenessibmqbelem =
{{-1, (OneZeroSecond10ibmqbelem + ZeroZeroSecond10ibmqbelem) / 8192},
{-0.8, (OneZeroSecond08ibmqbelem + ZeroZeroSecond08ibmqbelem) / 8192},
{-0.6, (OneZeroSecond06ibmqbelem + ZeroZeroSecond06ibmqbelem) / 8192},
{-0.4, (OneZeroSecond04ibmqbelem + ZeroZeroSecond04ibmqbelem) / 8192},
{-0.2, (OneZeroSecond02ibmqbelem + ZeroZeroSecond02ibmqbelem) / 8192},
{-0.0, (OneZeroFirst00ibmqbelem + ZeroZeroFirst00ibmqbelem) / 8192},
{0.2, (OneZeroFirst02ibmqbelem + ZeroZeroFirst02ibmqbelem) / 8192},
{0.4, (OneZeroFirst04ibmqbelem + ZeroZeroFirst04ibmqbelem) / 8192},
{0.6, (OneZeroFirst06ibmqbelem + ZeroZeroFirst06ibmqbelem) / 8192},
{0.8, (OneZeroFirst08ibmqbelem + ZeroZeroFirst08ibmqbelem) / 8192},
{1.0, (OneZeroFirst10ibmqbelem + ZeroZeroFirst10ibmqbelem) / 8192}}
ExpCosSqibmqbelem = ListPlot[CosSqibmqbelem]
ExpDecisivenessibmqbelem = ListPlot[Decisivenessibmqbelem]

```

Out[]= 652

Out[]= 1144

Out[]= 5682

Out[]= 714

Out[]= 646

Out[]= 1567

Out[]= 5135

Out[]= 844

Out[]= 740

Out[]= 2108

Out[]= 4552

Out[]= 792

Out[]= 871

Out[]= 2757

Out[]= 3744

Out[]= 820

Out[]= 976

Out[]= 3302

Out[]= 3150

Out[]= 764

Out[]= 1247

Out[]= 3764

Out[]= 2391

Out[]= 790

Out[]= 1515

Out[]= 4201

Out[]= 1729

Out[]= 747

Out[]= 1698

Out[]= 4535

Out[]= 1220

Out[]= 739

Out[]= 1866

Out[]= 4914

Out[]= 724

Out[]= 688

Out[]= 2072

Out[]= 5018

Out[]= 471

Out[]= 631

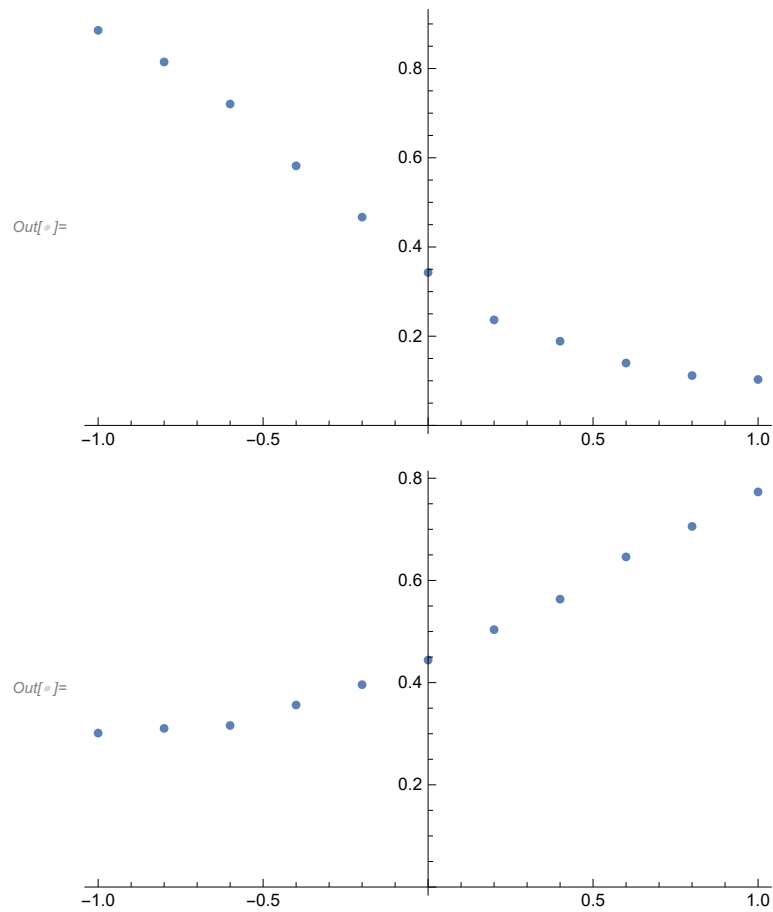
Out[]= 2186

Out[]= 5099

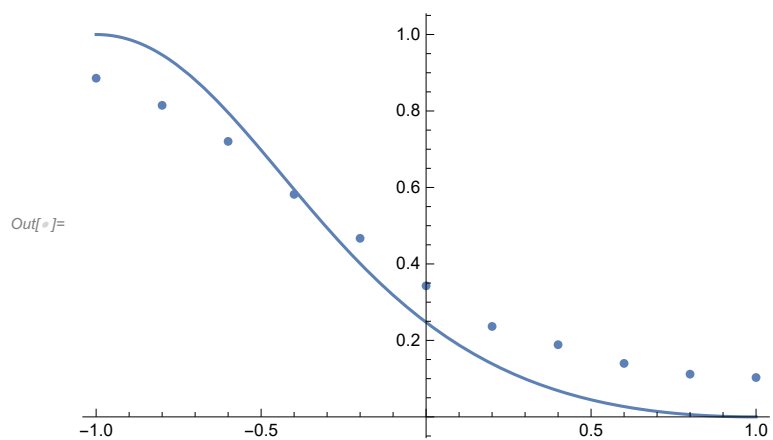
Out[]= 282

Out[]= 625

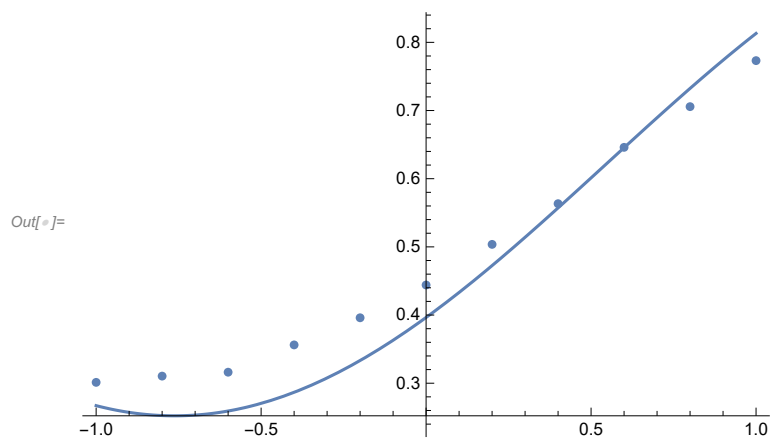
$$\begin{aligned}
 \text{Out}[*]= & \left\{ \left\{ -1, \frac{1093}{1234} \right\}, \left\{ -0.8, \frac{2072}{2543} \right\}, \left\{ -0.6, \frac{933}{1295} \right\}, \left\{ -0.4, \frac{849}{1459} \right\}, \left\{ -0.2, \frac{1515}{3244} \right\}, \right. \\
 & \left. \left\{ 0., \frac{1247}{3638} \right\}, \left\{ 0.2, \frac{488}{2063} \right\}, \left\{ 0.4, \frac{67}{355} \right\}, \left\{ 0.6, \frac{185}{1323} \right\}, \left\{ 0.8, \frac{646}{5781} \right\}, \left\{ 1, \frac{326}{3167} \right\} \right\} \\
 \text{Out}[*]= & \left\{ \left\{ -1, \frac{617}{2048} \right\}, \left\{ -0.8, \frac{2543}{8192} \right\}, \left\{ -0.6, \frac{1295}{4096} \right\}, \left\{ -0.4, \frac{1459}{4096} \right\}, \left\{ -0.2, \frac{811}{2048} \right\}, \right. \\
 & \left. \left\{ 0., \frac{1819}{4096} \right\}, \left\{ 0.2, \frac{2063}{4096} \right\}, \left\{ 0.4, \frac{4615}{8192} \right\}, \left\{ 0.6, \frac{1323}{2048} \right\}, \left\{ 0.8, \frac{5781}{8192} \right\}, \left\{ 1., \frac{3167}{4096} \right\} \right\}
 \end{aligned}$$



In[]:= Show[cosTH, ExpCosSqibmqbelem]



In[]:= Show[decTH, ExpDecisivenessibmqbelem]

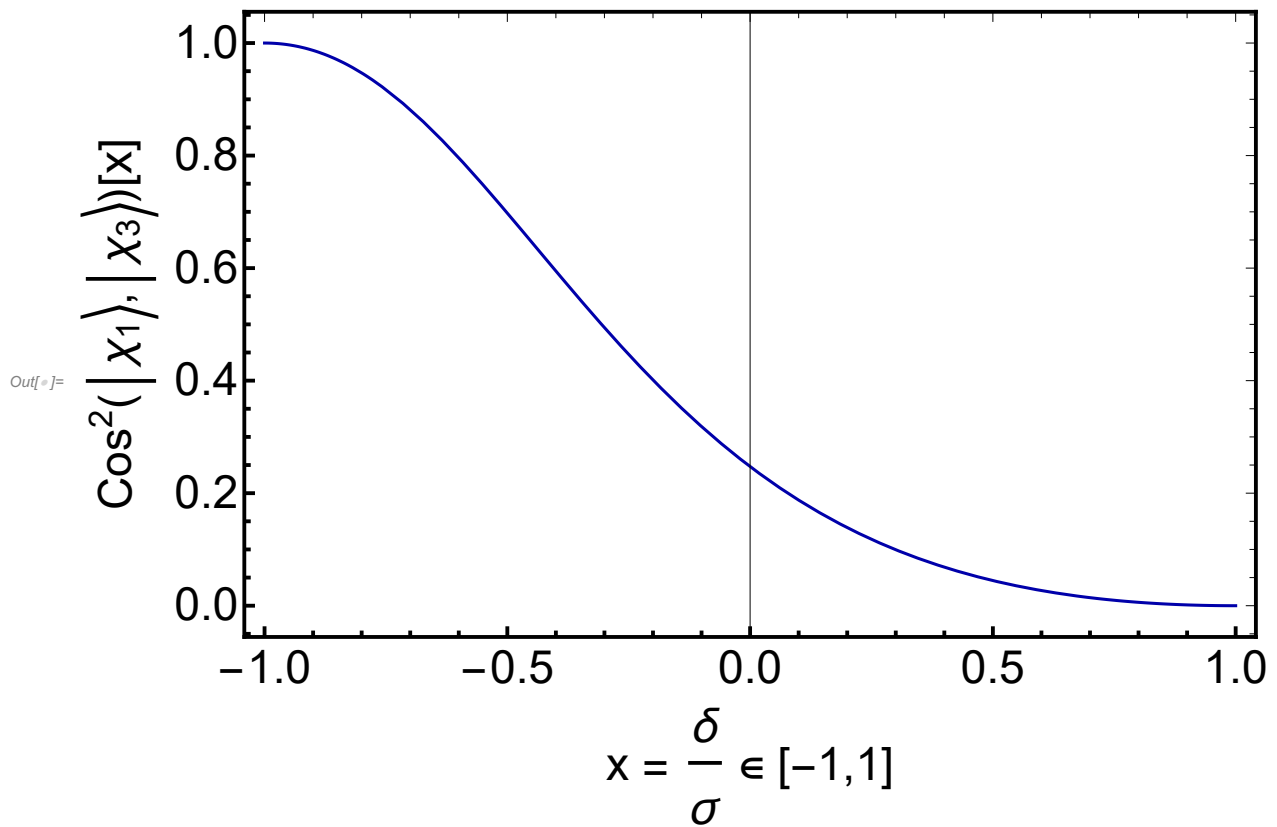


$$\ln[\bullet] :=$$

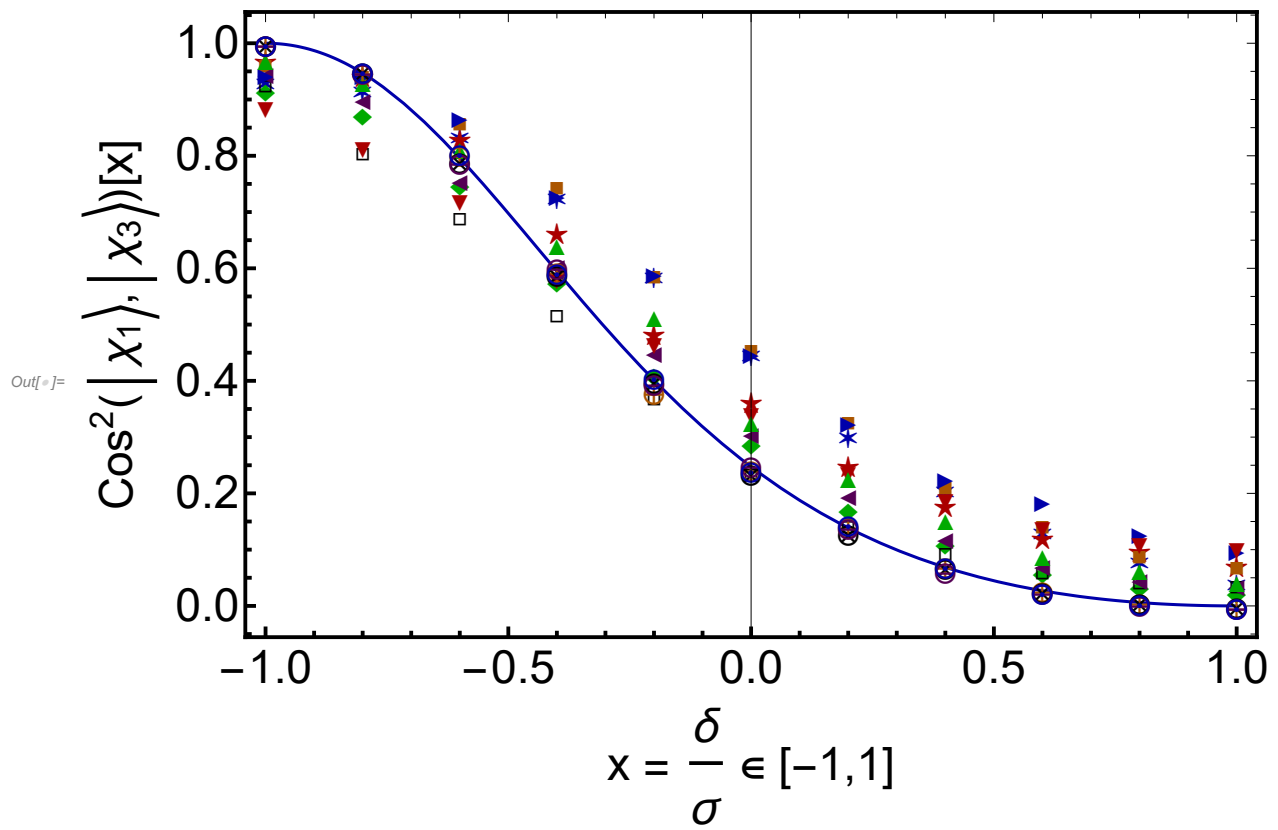

```

In[ ]:= CosSqTheory = Plot[1 - N[cosFirstFunction[-x * σ, 6 / 5, π / 2 - 1, 1]], {x, -1, 1},
  PlotRange → All, PlotStyle → {Directive[Darker[Blue], Thickness[0.003]]},
  Frame → True, FrameStyle → Directive[Black, Thick], Frame → True,
  FrameStyle → Directive[Black, Thick], LabelStyle → Large,
  PlotStyle → {Directive[Darker[Green], Thickness[0.007]]},
  FrameLabel → {{Cos²(|χ₁⟩, |χ₃⟩)[x]}, {"x =  $\frac{\delta}{\sigma} \in [-1, 1]$ ", ""}},
  LabelStyle → {FontWeight → "Bold", FontSize → 25},
  ImageSize → 650, GridLinesStyle → Directive[Thick, Gray]]

```



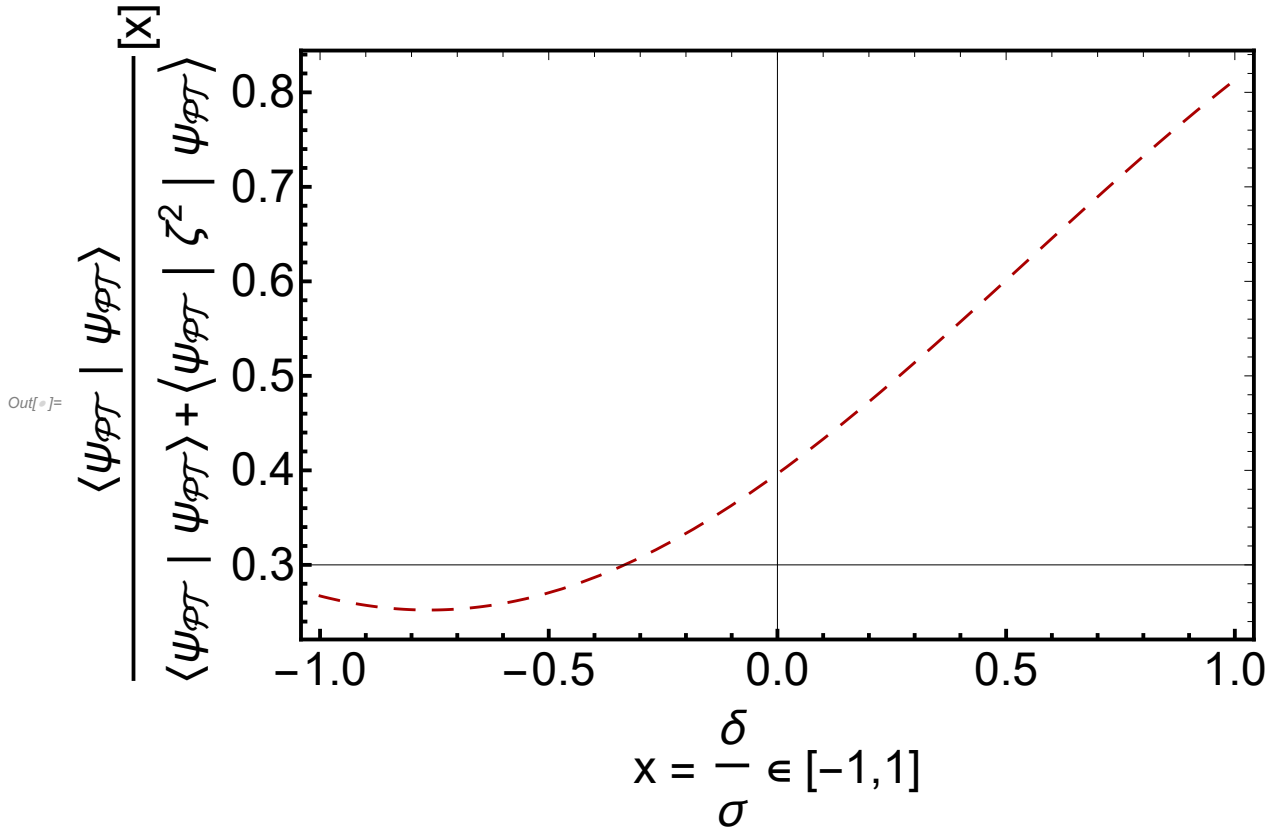
```
In[ ]:= p1 = Show[CosSqTheory, CosSqExperiment]
```



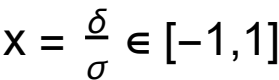
```

In[ ]:= DecisivenessTheory = Plot[DecisivenessFirstFunction[-x * σ, 6 / 5, π / 2 - 1, 2], {x, -1, 1},
  PlotRange → All, PlotStyle → {Directive[Darker[Red], Dashing[0.02], Thickness[0.003]]},
  Frame → True, FrameStyle → Directive[Black, Thick], Frame → True,
  FrameStyle → Directive[Black, Thick], LabelStyle → Large,
  PlotStyle → {Directive[Darker[Green], Thickness[0.007]]},
  FrameLabel → {{
     $\frac{\langle \psi_{\mathcal{PT}} | \psi_{\mathcal{PT}} \rangle}{\langle \psi_{\mathcal{PT}} | \psi_{\mathcal{PT}} \rangle + \langle \psi_{\mathcal{PT}} | \xi^2 | \psi_{\mathcal{PT}} \rangle}$  [x],
    { "x =  $\frac{\delta}{\sigma} \in [-1,1]$ ", "" }
  }},
  LabelStyle → {FontWeight → "Bold", FontSize → 25},
  ImageSize → 650, GridLinesStyle → Directive[Thick, Gray]]

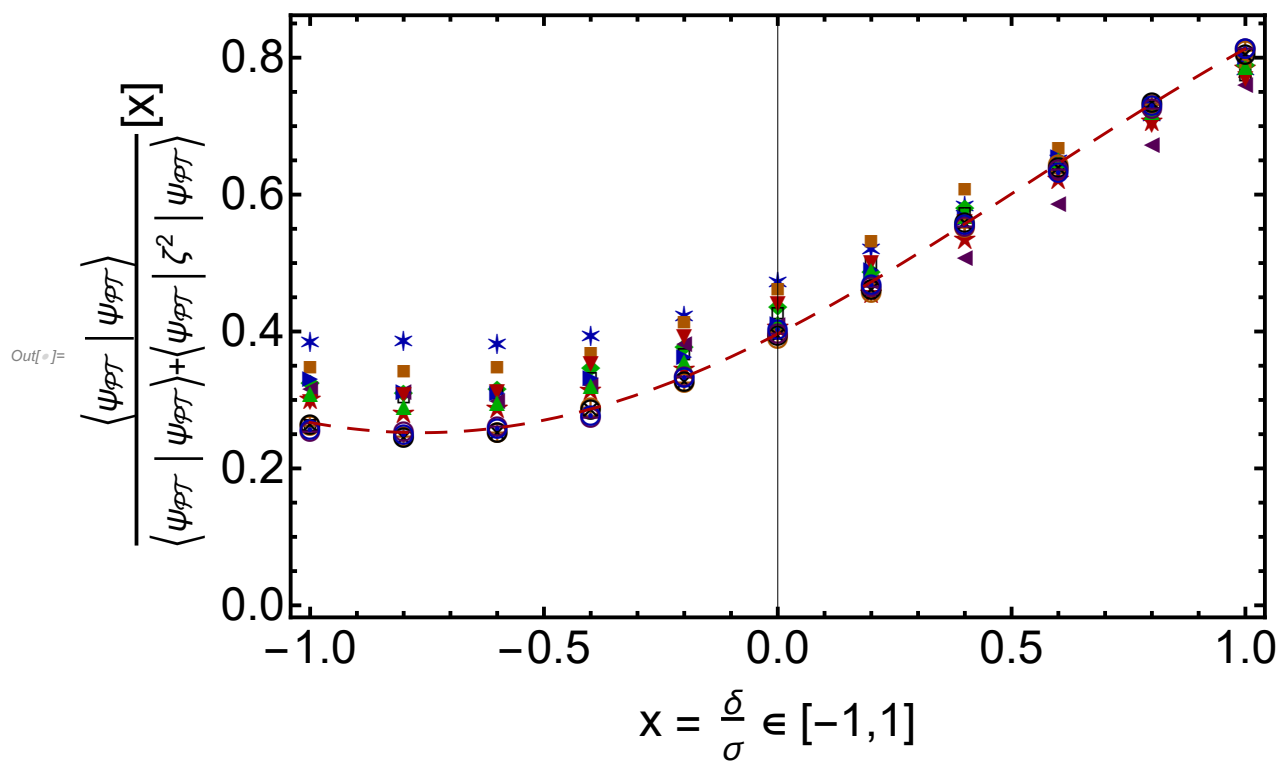
```



Out[•]=



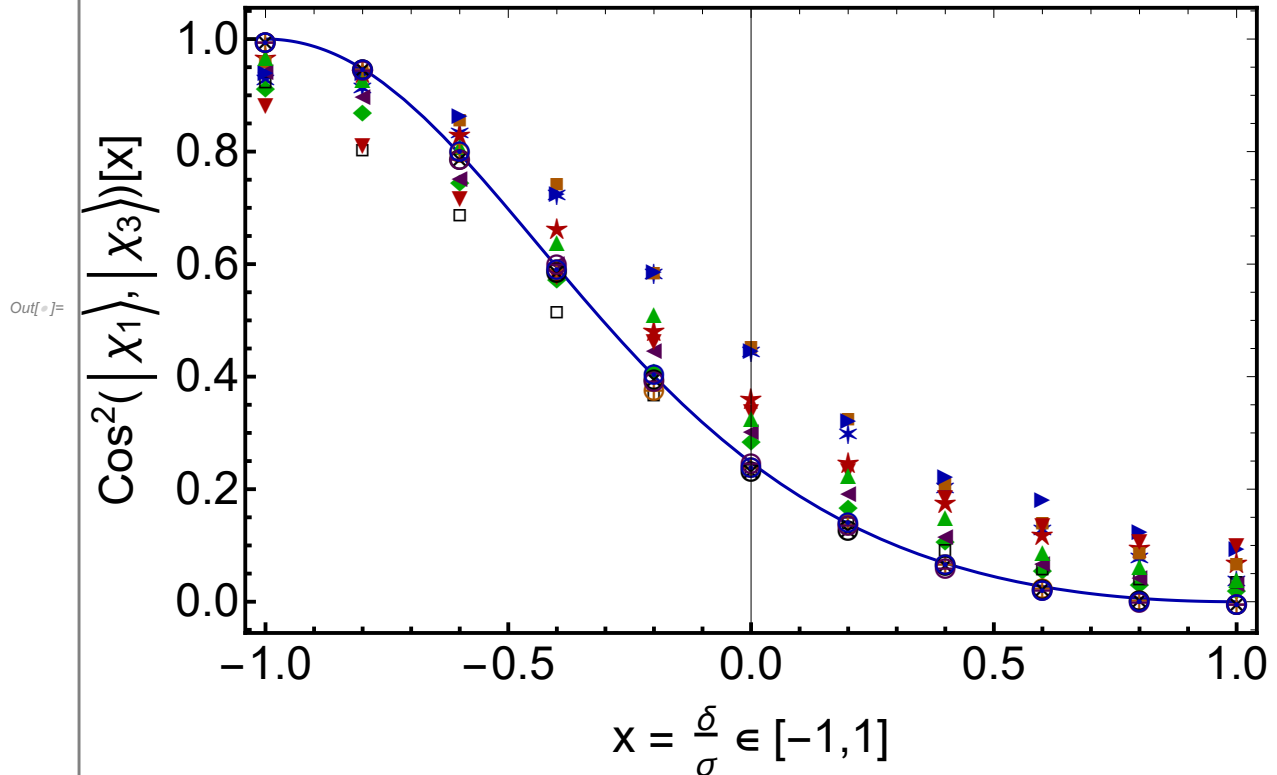
```
In[ ]:= p2 = Show[DecisivenessExperiment, DecisivenessTheory]
```



```

In[ ]:= title = Panel[Style["First stage,  $\alpha = \frac{\pi}{2} - 1$ ,  $\phi = -\frac{\pi}{2}$ ,  $\mathcal{N}(\theta) \approx \mathcal{N}_{\min}$ ", White, 20],
      ImageSize → 500, Background → Blue, Alignment → Center];
DependenceVariation = Deploy@Grid[{{title, SpanFromLeft}, {p1, p2}},
  Dividers → Gray, Spacings → {0, 0}]

```



```

In[ ]:= Export["First650ne_8_9_2023.png", DependenceVariation, ImageSize → 10 000]

```

Out[]:= First650ne_8_9_2023.png

```

In[ ]:= (*ibm_perth*)
ZeroZeroSecond10ibmperth = 2939
ZeroOneSecond10ibmperth = 4629
OneZeroSecond10ibmperth = 224
OneOneSecond10ibmperth = 400

ZeroZeroSecond08ibmperth = 2897
ZeroOneSecond08ibmperth = 4569
OneZeroSecond08ibmperth = 269
OneOneSecond08ibmperth = 457

ZeroZeroSecond06ibmperth = 2611
ZeroOneSecond06ibmperth = 4490

```

OneZeroSecond06ibmperth = 521
 OneOneSecond06ibmperth = 570

ZeroZeroSecond04ibmperth = 2338
 ZeroOneSecond04ibmperth = 4288
 OneZeroSecond04ibmperth = 889
 OneOneSecond04ibmperth = 677

ZeroZeroSecond02ibmperth = 2027
 ZeroOneSecond02ibmperth = 3945
 OneZeroSecond02ibmperth = 1444
 OneOneSecond02ibmperth = 776

ZeroZeroFirst00ibmperth = 1725
 ZeroOneFirst00ibmperth = 3517
 OneZeroFirst00ibmperth = 2148
 OneOneFirst00ibmperth = 802

ZeroZeroFirst02ibmperth = 1278
 ZeroOneFirst02ibmperth = 3065
 OneZeroFirst02ibmperth = 2996
 OneOneFirst02ibmperth = 853

ZeroZeroFirst04ibmperth = 974
 ZeroOneFirst04ibmperth = 2503
 OneZeroFirst04ibmperth = 3812
 OneOneFirst04ibmperth = 903

ZeroZeroFirst06ibmperth = 689
 ZeroOneFirst06ibmperth = 1954
 OneZeroFirst06ibmperth = 4649
 OneOneFirst06ibmperth = 900

ZeroZeroFirst08ibmperth = 458
 ZeroOneFirst08ibmperth = 1437
 OneZeroFirst08ibmperth = 5408
 OneOneFirst08ibmperth = 889

ZeroZeroFirst10ibmperth = 248
 ZeroOneFirst10ibmperth = 933
 OneZeroFirst10ibmperth = 6161
 OneOneFirst10ibmperth = 850

CosSqibmperth =

$$\left\{ \left\{ -1, \text{ZeroZeroSecond10ibmperth} / (\text{OneZeroSecond10ibmperth} + \text{ZeroZeroSecond10ibmperth}) \right\}, \right. \\
\left\{ -0.8, \text{ZeroZeroSecond08ibmperth} / (\text{OneZeroSecond08ibmperth} + \text{ZeroZeroSecond08ibmperth}) \right\}, \\
\left\{ -0.6, \text{ZeroZeroSecond06ibmperth} / (\text{OneZeroSecond06ibmperth} + \text{ZeroZeroSecond06ibmperth}) \right\}, \\
\left\{ -0.4, \text{ZeroZeroSecond04ibmperth} / (\text{OneZeroSecond04ibmperth} + \text{ZeroZeroSecond04ibmperth}) \right\}, \\
\left\{ -0.2, \text{ZeroZeroSecond02ibmperth} / (\text{OneZeroSecond02ibmperth} + \text{ZeroZeroSecond02ibmperth}) \right\}, \\
\left\{ 0.0, \text{ZeroZeroFirst00ibmperth} / (\text{OneZeroFirst00ibmperth} + \text{ZeroZeroFirst00ibmperth}) \right\}, \\
\left. \left\{ 0.2, \text{ZeroZeroFirst02ibmperth} / (\text{OneZeroFirst02ibmperth} + \text{ZeroZeroFirst02ibmperth}) \right\} \right\},$$


```

{0.4, ZeroZeroFirst04ibmp Perth / (OneZeroFirst04ibmp Perth + ZeroZeroFirst04ibmp Perth)},
{0.6, ZeroZeroFirst06ibmp Perth / (OneZeroFirst06ibmp Perth + ZeroZeroFirst06ibmp Perth)},
{0.8, ZeroZeroFirst08ibmp Perth / (OneZeroFirst08ibmp Perth + ZeroZeroFirst08ibmp Perth)},
{1, ZeroZeroFirst10ibmp Perth / (OneZeroFirst10ibmp Perth + ZeroZeroFirst10ibmp Perth)}},
Decisivenessibmp Perth = {{-1, (OneZeroSecond10ibmp Perth + ZeroZeroSecond10ibmp Perth) / 8192},
{-0.8, (OneZeroSecond08ibmp Perth + ZeroZeroSecond08ibmp Perth) / 8192},
{-0.6, (OneZeroSecond06ibmp Perth + ZeroZeroSecond06ibmp Perth) / 8192},
{-0.4, (OneZeroSecond04ibmp Perth + ZeroZeroSecond04ibmp Perth) / 8192},
{-0.2, (OneZeroSecond02ibmp Perth + ZeroZeroSecond02ibmp Perth) / 8192},
{-0.0, (OneZeroFirst00ibmp Perth + ZeroZeroFirst00ibmp Perth) / 8192},
{0.2, (OneZeroFirst02ibmp Perth + ZeroZeroFirst02ibmp Perth) / 8192},
{0.4, (OneZeroFirst04ibmp Perth + ZeroZeroFirst04ibmp Perth) / 8192},
{0.6, (OneZeroFirst06ibmp Perth + ZeroZeroFirst06ibmp Perth) / 8192},
{0.8, (OneZeroFirst08ibmp Perth + ZeroZeroFirst08ibmp Perth) / 8192},
{1.0, (OneZeroFirst10ibmp Perth + ZeroZeroFirst10ibmp Perth) / 8192}},
ExpCosSqibmp Perth = ListPlot[CosSqibmp Perth]
ExpDecisivenessibmp Perth = ListPlot[Decisivenessibmp Perth]
Show[cosTH, ExpCosSqibmp Perth]
Show[decTH, ExpDecisivenessibmp Perth]

```

Out[]= 2939

Out[]= 4629

Out[]= 224

Out[]= 400

Out[]= 2897

Out[]= 4569

Out[]= 269

Out[]= 457

Out[]= 2611

Out[]= 4490

Out[]= 521

Out[]= 570

Out[]= 2338

Out[]= 4288

Out[]= 889

Out[]= 677

Out[]= 2027

Out[]= 3945

Out[]= 1444

Out[]= 776

Out[]= 1725

Out[]= 3517

Out[]= 2148

Out[]= 802

Out[]= 1278

Out[]= 3065

Out[]= 2996

Out[]= 853

Out[]= 974

Out[]= 2503

Out[]= 3812

Out[]= 903

Out[]= 689

Out[]= 1954

Out[]= 4649

Out[]= 900

Out[]= 458

Out[]= 1437

Out[]= 5408

Out[]= 889

Out[]= 248

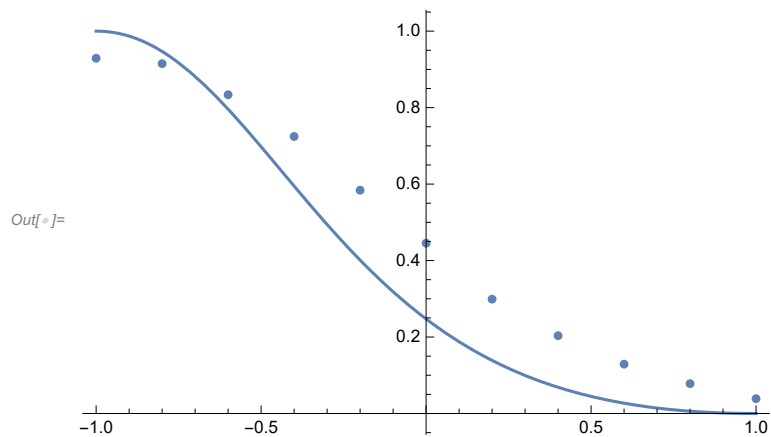
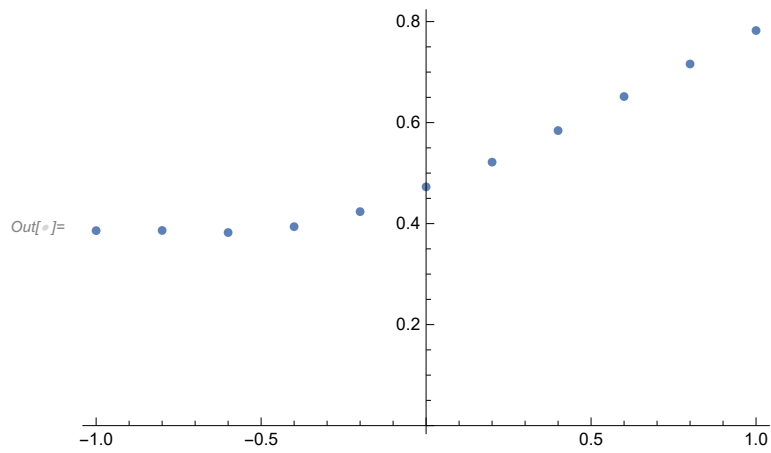
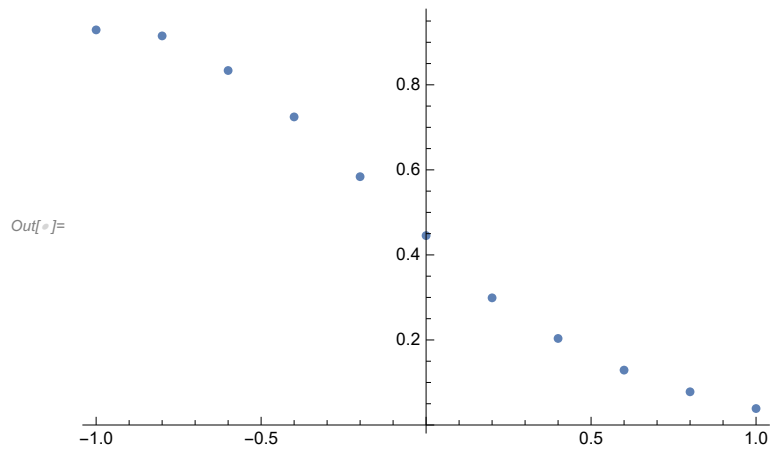
Out[]= 933

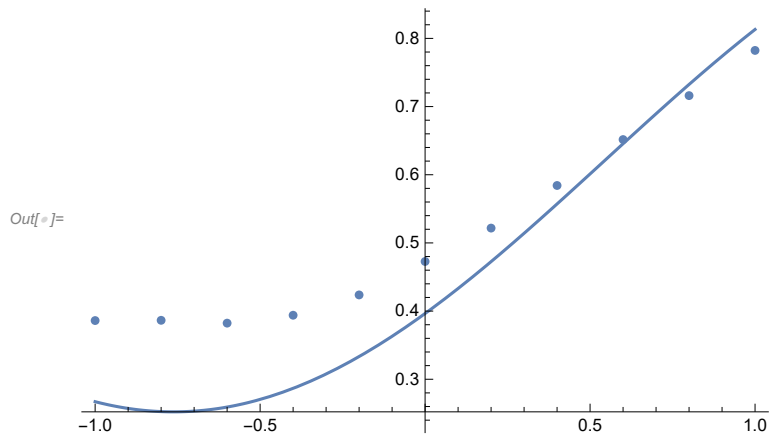
Out[]= 6161

Out[]= 850

Out[]= $\left\{ \left\{ -1, \frac{2939}{3163} \right\}, \left\{ -0.8, \frac{2897}{3166} \right\}, \left\{ -0.6, \frac{2611}{3132} \right\}, \left\{ -0.4, \frac{334}{461} \right\}, \left\{ -0.2, \frac{2027}{3471} \right\}, \right.$
 $\left. \left\{ 0., \frac{575}{1291} \right\}, \left\{ 0.2, \frac{639}{2137} \right\}, \left\{ 0.4, \frac{487}{2393} \right\}, \left\{ 0.6, \frac{689}{5338} \right\}, \left\{ 0.8, \frac{229}{2933} \right\}, \left\{ 1, \frac{248}{6409} \right\} \right\}$

$\text{Out}[*]= \left\{ \left\{ -1, \frac{3163}{8192} \right\}, \left\{ -0.8, \frac{1583}{4096} \right\}, \left\{ -0.6, \frac{783}{2048} \right\}, \left\{ -0.4, \frac{3227}{8192} \right\}, \left\{ -0.2, \frac{3471}{8192} \right\}, \right.$
 $\left. \left\{ 0., \frac{3873}{8192} \right\}, \left\{ 0.2, \frac{2137}{4096} \right\}, \left\{ 0.4, \frac{2393}{4096} \right\}, \left\{ 0.6, \frac{2669}{4096} \right\}, \left\{ 0.8, \frac{2933}{4096} \right\}, \left\{ 1., \frac{6409}{8192} \right\} \right\}$





```
In[ ]:= (*ibmq_jakarta*)
ZeroZeroFirst10ibmqjakarta = 455
ZeroOneFirst10ibmqjakarta = 1342
OneZeroFirst10ibmqjakarta = 5978
OneOneFirst10ibmqjakarta = 417

ZeroZeroFirst08ibmqjakarta = 560
ZeroOneFirst08ibmqjakarta = 1901
OneZeroFirst08ibmqjakarta = 5249
OneOneFirst08ibmqjakarta = 482

ZeroZeroFirst06ibmqjakarta = 611
ZeroOneFirst06ibmqjakarta = 2565
OneZeroFirst06ibmqjakarta = 4496
OneOneFirst06ibmqjakarta = 520

ZeroZeroFirst04ibmqjakarta = 777
ZeroOneFirst04ibmqjakarta = 3277
OneZeroFirst04ibmqjakarta = 3616
OneOneFirst04ibmqjakarta = 522

ZeroZeroFirst02ibmqjakarta = 929
ZeroOneFirst02ibmqjakarta = 3942
OneZeroFirst02ibmqjakarta = 2817
OneOneFirst02ibmqjakarta = 504

ZeroZeroFirst00ibmqjakarta = 1210
ZeroOneFirst00ibmqjakarta = 4273
OneZeroFirst00ibmqjakarta = 2134
OneOneFirst00ibmqjakarta = 575

ZeroZeroSecond02ibmqjakarta = 1367
ZeroOneSecond02ibmqjakarta = 4764
OneZeroSecond02ibmqjakarta = 1469
OneOneSecond02ibmqjakarta = 592

ZeroZeroSecond04ibmqjakarta = 1710
ZeroOneSecond04ibmqjakarta = 5058
```

OneZeroSecond04ibmqjakarta = 869

OneOneSecond04ibmqjakarta = 555

ZeroZeroSecond06ibmqjakarta = 1969

ZeroOneSecond06ibmqjakarta = 5288

OneZeroSecond06ibmqjakarta = 403

OneOneSecond06ibmqjakarta = 532

ZeroZeroSecond08ibmqjakarta = 2172

ZeroOneSecond08ibmqjakarta = 5379

OneZeroSecond08ibmqjakarta = 137

OneOneSecond08ibmqjakarta = 504

ZeroZeroSecond10ibmqjakarta = 2401

ZeroOneSecond10ibmqjakarta = 5309

OneZeroSecond10ibmqjakarta = 81

OneOneSecond10ibmqjakarta = 401

CosSqibmqjakarta = {{-1, ZeroZeroSecond10ibmqjakarta /
 (OneZeroSecond10ibmqjakarta + ZeroZeroSecond10ibmqjakarta)},
 {-0.8, ZeroZeroSecond08ibmqjakarta / (OneZeroSecond08ibmqjakarta +
 ZeroZeroSecond08ibmqjakarta)}, {-0.6, ZeroZeroSecond06ibmqjakarta /
 (OneZeroSecond06ibmqjakarta + ZeroZeroSecond06ibmqjakarta)},
 {-0.4, ZeroZeroSecond04ibmqjakarta / (OneZeroSecond04ibmqjakarta +
 ZeroZeroSecond04ibmqjakarta)}, {-0.2, ZeroZeroSecond02ibmqjakarta /
 (OneZeroSecond02ibmqjakarta + ZeroZeroSecond02ibmqjakarta)}, {0.0,
 ZeroZeroFirst00ibmqjakarta / (OneZeroFirst00ibmqjakarta + ZeroZeroFirst00ibmqjakarta)},
 {0.2, ZeroZeroFirst02ibmqjakarta /
 (OneZeroFirst02ibmqjakarta + ZeroZeroFirst02ibmqjakarta)}, {0.4,
 ZeroZeroFirst04ibmqjakarta / (OneZeroFirst04ibmqjakarta + ZeroZeroFirst04ibmqjakarta)},
 {0.6, ZeroZeroFirst06ibmqjakarta /
 (OneZeroFirst06ibmqjakarta + ZeroZeroFirst06ibmqjakarta)}, {0.8,
 ZeroZeroFirst08ibmqjakarta / (OneZeroFirst08ibmqjakarta + ZeroZeroFirst08ibmqjakarta)},
 {1, ZeroZeroFirst10ibmqjakarta /
 (OneZeroFirst10ibmqjakarta + ZeroZeroFirst10ibmqjakarta)}}}

Decisivenessibmqjakarta = {{-1, (OneZeroSecond10ibmqjakarta + ZeroZeroSecond10ibmqjakarta) /
 8192}, {-0.8, (OneZeroSecond08ibmqjakarta + ZeroZeroSecond08ibmqjakarta) / 8192},
 {-0.6, (OneZeroSecond06ibmqjakarta + ZeroZeroSecond06ibmqjakarta) / 8192},
 {-0.4, (OneZeroSecond04ibmqjakarta + ZeroZeroSecond04ibmqjakarta) / 8192},
 {-0.2, (OneZeroSecond02ibmqjakarta + ZeroZeroSecond02ibmqjakarta) / 8192},
 {-0.0, (OneZeroFirst00ibmqjakarta + ZeroZeroFirst00ibmqjakarta) / 8192},
 {0.2, (OneZeroFirst02ibmqjakarta + ZeroZeroFirst02ibmqjakarta) / 8192},
 {0.4, (OneZeroFirst04ibmqjakarta + ZeroZeroFirst04ibmqjakarta) / 8192},
 {0.6, (OneZeroFirst06ibmqjakarta + ZeroZeroFirst06ibmqjakarta) / 8192},
 {0.8, (OneZeroFirst08ibmqjakarta + ZeroZeroFirst08ibmqjakarta) / 8192},
 {1.0, (OneZeroFirst10ibmqjakarta + ZeroZeroFirst10ibmqjakarta) / 8192}}

ExpCosSqibmqjakarta = ListPlot[CosSqibmqjakarta]

ExpDecisivenessibmqjakarta = ListPlot[Decisivenessibmqjakarta]

Show[cosTH, ExpCosSqibmqjakarta]

Show[decTH, ExpDecisivenessibmqjakarta]

Out[]= 455

Out[]= 1342

Out[]= 5978

Out[]= 417

Out[]= 560

Out[]= 1901

Out[]= 5249

Out[]= 482

Out[]= 611

Out[]= 2565

Out[]= 4496

Out[]= 520

Out[]= 777

Out[]= 3277

Out[]= 3616

Out[]= 522

Out[]= 929

Out[]= 3942

Out[]= 2817

Out[]= 504

Out[]= 1210

Out[]= 4273

Out[]= 2134

Out[]= 575

Out[]= 1367

Out[]= 4764

Out[]= 1469

Out[]= 592

Out[]= 1710

Out[]= 5058

Out[]= 869

Out[]= 555

Out[]= 1969

Out[]= 5288

Out[]= 403

Out[]= 532

Out[]= 2172

Out[]= 5379

Out[]= 137

Out[]= 504

Out[]= 2401

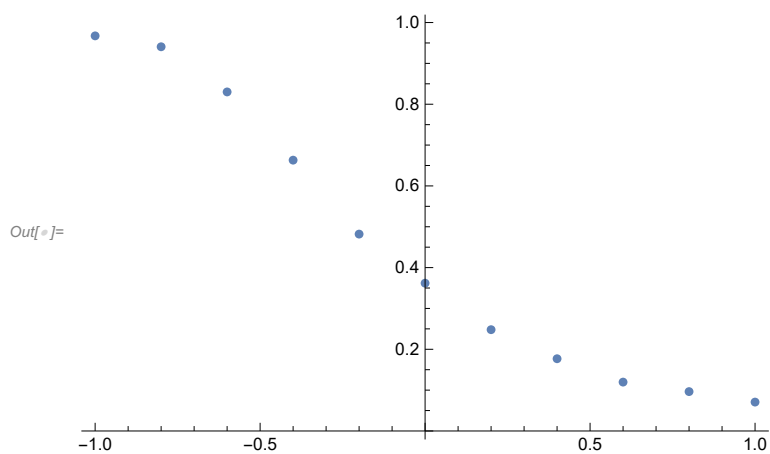
Out[]= 5309

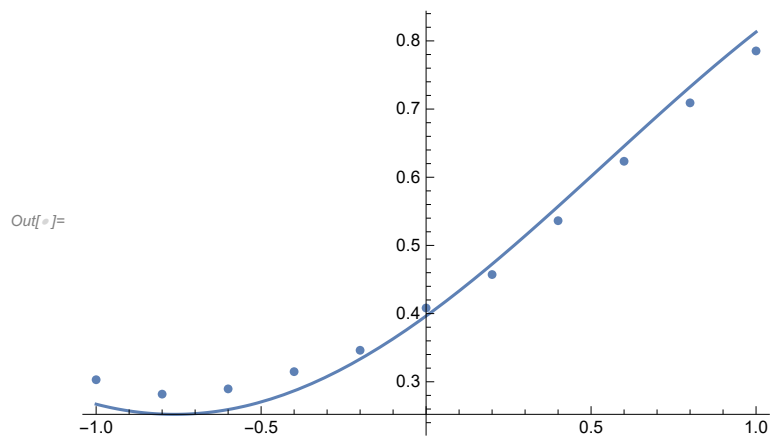
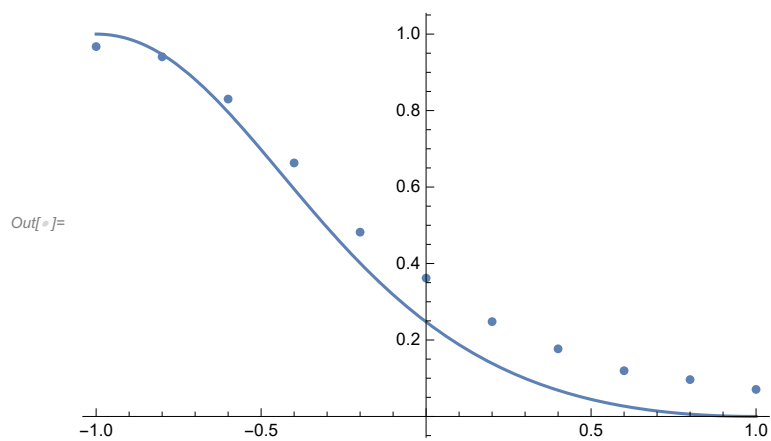
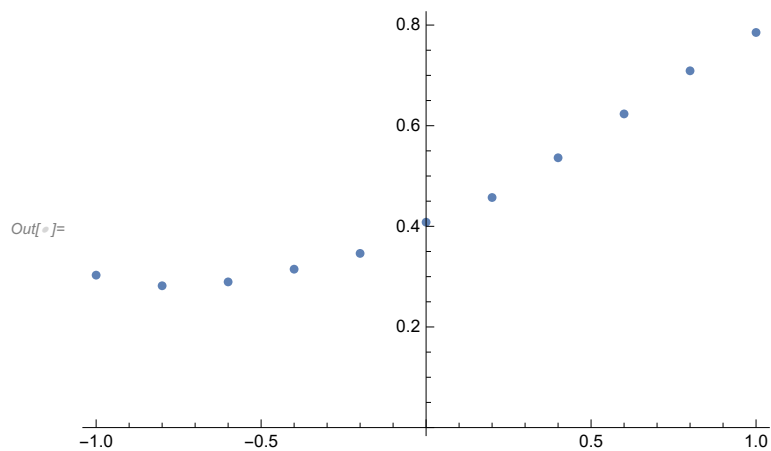
Out[]= 81

Out[]= 401

Out[]= $\left\{ \left\{ -1, \frac{2401}{2482} \right\}, \left\{ -0.8, \frac{2172}{2309} \right\}, \left\{ -0.6, \frac{1969}{2372} \right\}, \left\{ -0.4, \frac{1710}{2579} \right\}, \left\{ -0.2, \frac{1367}{2836} \right\}, \right.$
 $\left. \left\{ 0., \frac{55}{152} \right\}, \left\{ 0.2, \frac{929}{3746} \right\}, \left\{ 0.4, \frac{777}{4393} \right\}, \left\{ 0.6, \frac{611}{5107} \right\}, \left\{ 0.8, \frac{560}{5809} \right\}, \left\{ 1, \frac{65}{919} \right\} \right\}$

Out[]= $\left\{ \left\{ -1, \frac{1241}{4096} \right\}, \left\{ -0.8, \frac{2309}{8192} \right\}, \left\{ -0.6, \frac{593}{2048} \right\}, \left\{ -0.4, \frac{2579}{8192} \right\}, \left\{ -0.2, \frac{709}{2048} \right\}, \right.$
 $\left. \left\{ 0., \frac{209}{512} \right\}, \left\{ 0.2, \frac{1873}{4096} \right\}, \left\{ 0.4, \frac{4393}{8192} \right\}, \left\{ 0.6, \frac{5107}{8192} \right\}, \left\{ 0.8, \frac{5809}{8192} \right\}, \left\{ 1., \frac{6433}{8192} \right\} \right\}$





```
In[ ]:= (*ibm_lagos*)
ZeroZeroFirst10ibmlagos = 160
ZeroOneFirst10ibmlagos = 1240
OneZeroFirst10ibmlagos = 6332
OneOneFirst10ibmlagos = 460

ZeroZeroFirst08ibmlagos = 208
ZeroOneFirst08ibmlagos = 1757
OneZeroFirst08ibmlagos = 5731
OneOneFirst08ibmlagos = 496
```


ZeroZeroFirst06ibmlagos = 316
 ZeroOneFirst06ibmlagos = 2327
 OneZeroFirst06ibmlagos = 4969
 OneOneFirst06ibmlagos = 580

ZeroZeroFirst04ibmlagos = 528
 ZeroOneFirst04ibmlagos = 2847
 OneZeroFirst04ibmlagos = 4255
 OneOneFirst04ibmlagos = 562

ZeroZeroFirst02ibmlagos = 691
 ZeroOneFirst02ibmlagos = 3578
 OneZeroFirst02ibmlagos = 3334
 OneOneFirst02ibmlagos = 589

ZeroZeroFirst00ibmlagos = 1039
 ZeroOneFirst00ibmlagos = 4004
 OneZeroFirst00ibmlagos = 2562
 OneOneFirst00ibmlagos = 587

ZeroZeroSecond02ibmlagos = 1287
 ZeroOneSecond02ibmlagos = 4482
 OneZeroSecond02ibmlagos = 1835
 OneOneSecond02ibmlagos = 588

ZeroZeroSecond04ibmlagos = 1652
 ZeroOneSecond04ibmlagos = 4769
 OneZeroSecond04ibmlagos = 1215
 OneOneSecond04ibmlagos = 556

ZeroZeroSecond06ibmlagos = 1968
 ZeroOneSecond06ibmlagos = 4998
 OneZeroSecond06ibmlagos = 658
 OneOneSecond06ibmlagos = 568

ZeroZeroSecond08ibmlagos = 2242
 ZeroOneSecond08ibmlagos = 5115
 OneZeroSecond08ibmlagos = 326
 OneOneSecond08ibmlagos = 509

ZeroZeroSecond10ibmlagos = 2465
 ZeroOneSecond10ibmlagos = 5020
 OneZeroSecond10ibmlagos = 227
 OneOneSecond10ibmlagos = 480

CosSqibmlagos =
 $\{ \{-1, \text{ZeroZeroSecond10ibmlagos} / (\text{OneZeroSecond10ibmlagos} + \text{ZeroZeroSecond10ibmlagos})\},$
 $\{-0.8, \text{ZeroZeroSecond08ibmlagos} / (\text{OneZeroSecond08ibmlagos} + \text{ZeroZeroSecond08ibmlagos})\},$
 $\{-0.6, \text{ZeroZeroSecond06ibmlagos} / (\text{OneZeroSecond06ibmlagos} + \text{ZeroZeroSecond06ibmlagos})\},$
 $\{-0.4, \text{ZeroZeroSecond04ibmlagos} / (\text{OneZeroSecond04ibmlagos} + \text{ZeroZeroSecond04ibmlagos})\},$

```

{-0.2, ZeroZeroSecond02ibmlagos / (OneZeroSecond02ibmlagos + ZeroZeroSecond02ibmlagos)},
{0.0, ZeroZeroFirst00ibmlagos / (OneZeroFirst00ibmlagos + ZeroZeroFirst00ibmlagos)},
{0.2, ZeroZeroFirst02ibmlagos / (OneZeroFirst02ibmlagos + ZeroZeroFirst02ibmlagos)},
{0.4, ZeroZeroFirst04ibmlagos / (OneZeroFirst04ibmlagos + ZeroZeroFirst04ibmlagos)},
{0.6, ZeroZeroFirst06ibmlagos / (OneZeroFirst06ibmlagos + ZeroZeroFirst06ibmlagos)},
{0.8, ZeroZeroFirst08ibmlagos / (OneZeroFirst08ibmlagos + ZeroZeroFirst08ibmlagos)},
{1, ZeroZeroFirst10ibmlagos / (OneZeroFirst10ibmlagos + ZeroZeroFirst10ibmlagos)}}
Decisivenessibmlagos = {{-1, (OneZeroSecond10ibmlagos + ZeroZeroSecond10ibmlagos) / 8192},
{-0.8, (OneZeroSecond08ibmlagos + ZeroZeroSecond08ibmlagos) / 8192},
{-0.6, (OneZeroSecond06ibmlagos + ZeroZeroSecond06ibmlagos) / 8192},
{-0.4, (OneZeroSecond04ibmlagos + ZeroZeroSecond04ibmlagos) / 8192},
{-0.2, (OneZeroSecond02ibmlagos + ZeroZeroSecond02ibmlagos) / 8192},
{-0.0, (OneZeroFirst00ibmlagos + ZeroZeroFirst00ibmlagos) / 8192},
{0.2, (OneZeroFirst02ibmlagos + ZeroZeroFirst02ibmlagos) / 8192},
{0.4, (OneZeroFirst04ibmlagos + ZeroZeroFirst04ibmlagos) / 8192},
{0.6, (OneZeroFirst06ibmlagos + ZeroZeroFirst06ibmlagos) / 8192},
{0.8, (OneZeroFirst08ibmlagos + ZeroZeroFirst08ibmlagos) / 8192},
{1.0, (OneZeroFirst10ibmlagos + ZeroZeroFirst10ibmlagos) / 8192}}
ExpCosSqibmlagos = ListPlot[CosSqibmlagos]
ExpDecisivenessibmlagos = ListPlot[Decisivenessibmlagos]
Show[cosTH, ExpCosSqibmlagos, PlotRange -> All]
Show[decTH, ExpDecisivenessibmlagos]

```

Out[]= 160

Out[]= 1240

Out[]= 6332

Out[]= 460

Out[]= 208

Out[]= 1757

Out[]= 5731

Out[]= 496

Out[]= 316

Out[]= 2327

Out[]= 4969

Out[]= 580

Out[]= 528

Out[]= 2847

Out[]= 4255

Out[]= 562

$\text{Out}[*]= 691$

$\text{Out}[*]= 3578$

$\text{Out}[*]= 3334$

$\text{Out}[*]= 589$

$\text{Out}[*]= 1039$

$\text{Out}[*]= 4004$

$\text{Out}[*]= 2562$

$\text{Out}[*]= 587$

$\text{Out}[*]= 1287$

$\text{Out}[*]= 4482$

$\text{Out}[*]= 1835$

$\text{Out}[*]= 588$

$\text{Out}[*]= 1652$

$\text{Out}[*]= 4769$

$\text{Out}[*]= 1215$

$\text{Out}[*]= 556$

$\text{Out}[*]= 1968$

$\text{Out}[*]= 4998$

$\text{Out}[*]= 658$

$\text{Out}[*]= 568$

$\text{Out}[*]= 2242$

$\text{Out}[*]= 5115$

$\text{Out}[*]= 326$

$\text{Out}[*]= 509$

$\text{Out}[*]= 2465$

$\text{Out}[*]= 5020$

$\text{Out}[*]= 227$

$\text{Out}[*]= 480$

$\text{Out}[*]= \left\{ \left\{ -1, \frac{2465}{2692} \right\}, \left\{ -0.8, \frac{1121}{1284} \right\}, \left\{ -0.6, \frac{984}{1313} \right\}, \left\{ -0.4, \frac{1652}{2867} \right\}, \left\{ -0.2, \frac{1287}{3122} \right\}, \right. \\ \left. \left\{ 0., \frac{1039}{3601} \right\}, \left\{ 0.2, \frac{691}{4025} \right\}, \left\{ 0.4, \frac{528}{4783} \right\}, \left\{ 0.6, \frac{316}{5285} \right\}, \left\{ 0.8, \frac{208}{5939} \right\}, \left\{ 1, \frac{40}{1623} \right\} \right\}$

$Out[\#]= \left\{ \left\{ -1, \frac{673}{2048} \right\}, \left\{ -0.8, \frac{321}{1024} \right\}, \left\{ -0.6, \frac{1313}{4096} \right\}, \left\{ -0.4, \frac{2867}{8192} \right\}, \left\{ -0.2, \frac{1561}{4096} \right\}, \right.$
 $\left. \left\{ 0., \frac{3601}{8192} \right\}, \left\{ 0.2, \frac{4025}{8192} \right\}, \left\{ 0.4, \frac{4783}{8192} \right\}, \left\{ 0.6, \frac{5285}{8192} \right\}, \left\{ 0.8, \frac{5939}{8192} \right\}, \left\{ 1., \frac{1623}{2048} \right\} \right\}$

