

$\ln[\sigma] := \sigma = 4 / 5$

```
(*simulator_extended_stabilizer*)
ZeroZeroFirst10simulatorextendedstabilizer = 2
ZeroOneFirst10simulatorextendedstabilizer = 3249
OneZeroFirst10simulatorextendedstabilizer = 3382
OneOneFirst10simulatorextendedstabilizer = 1559

ZeroZeroFirst08simulatorextendedstabilizer = 20
ZeroOneFirst08simulatorextendedstabilizer = 3662
OneZeroFirst08simulatorextendedstabilizer = 2844
OneOneFirst08simulatorextendedstabilizer = 1666

ZeroZeroFirst06simulatorextendedstabilizer = 62
ZeroOneFirst06simulatorextendedstabilizer = 4148
OneZeroFirst06simulatorextendedstabilizer = 2328
OneOneFirst06simulatorextendedstabilizer = 1654

ZeroZeroFirst04simulatorextendedstabilizer = 133
ZeroOneFirst04simulatorextendedstabilizer = 4537
OneZeroFirst04simulatorextendedstabilizer = 1876
OneOneFirst04simulatorextendedstabilizer = 1646

ZeroZeroFirst02simulatorextendedstabilizer = 213
ZeroOneFirst02simulatorextendedstabilizer = 4972
OneZeroFirst02simulatorextendedstabilizer = 1435
OneOneFirst02simulatorextendedstabilizer = 1572

ZeroZeroFirst00simulatorextendedstabilizer = 328
ZeroOneFirst00simulatorextendedstabilizer = 5341
OneZeroFirst00simulatorextendedstabilizer = 950
OneOneFirst00simulatorextendedstabilizer = 1573

ZeroZeroSecond02simulatorextendedstabilizer = 504
ZeroOneSecond02simulatorextendedstabilizer = 5593
OneZeroSecond02simulatorextendedstabilizer = 576
OneOneSecond02simulatorextendedstabilizer = 1519

ZeroZeroSecond04simulatorextendedstabilizer = 588
ZeroOneSecond04simulatorextendedstabilizer = 5775
OneZeroSecond04simulatorextendedstabilizer = 365
OneOneSecond04simulatorextendedstabilizer = 1464

ZeroZeroSecond06simulatorextendedstabilizer = 787
ZeroOneSecond06simulatorextendedstabilizer = 5875
OneZeroSecond06simulatorextendedstabilizer = 172
OneOneSecond06simulatorextendedstabilizer = 1358

ZeroZeroSecond08simulatorextendedstabilizer = 991
ZeroOneSecond08simulatorextendedstabilizer = 5892
OneZeroSecond08simulatorextendedstabilizer = 44
```

OneOneSecond08simulatorextendedstabilizer = 1265

ZeroZeroSecond10simulatorextendedstabilizer = 1203

ZeroOneSecond10simulatorextendedstabilizer = 5892

OneZeroSecond10simulatorextendedstabilizer = 7

OneOneSecond10simulatorextendedstabilizer = 1090

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

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

```

{-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[ ]=  $\frac{4}{5}$ 
Out[ ]= 2
Out[ ]= 3249
Out[ ]= 3382
Out[ ]= 1559
Out[ ]= 20
Out[ ]= 3662
Out[ ]= 2844
Out[ ]= 1666
Out[ ]= 62
Out[ ]= 4148
Out[ ]= 2328
Out[ ]= 1654
Out[ ]= 133
Out[ ]= 4537
Out[ ]= 1876
Out[ ]= 1646
Out[ ]= 213

```

Out[]= 4972

Out[]= 1435

Out[]= 1572

Out[]= 328

Out[]= 5341

Out[]= 950

Out[]= 1573

Out[]= 504

Out[]= 5593

Out[]= 576

Out[]= 1519

Out[]= 588

Out[]= 5775

Out[]= 365

Out[]= 1464

Out[]= 787

Out[]= 5875

Out[]= 172

Out[]= 1358

Out[]= 991

Out[]= 5892

Out[]= 44

Out[]= 1265

Out[]= 1203

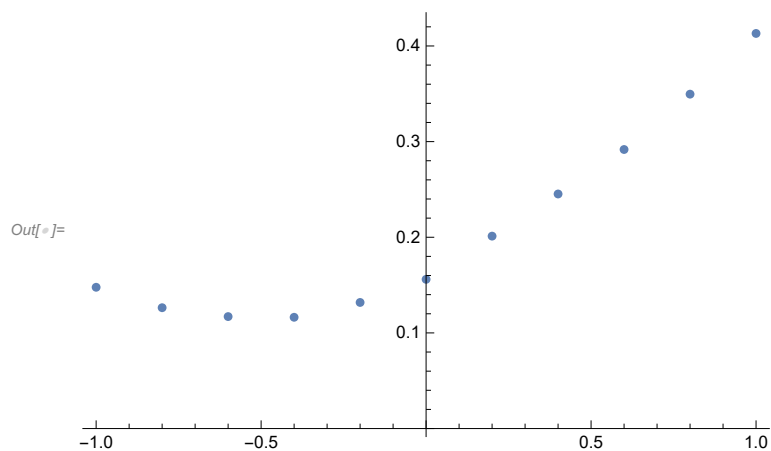
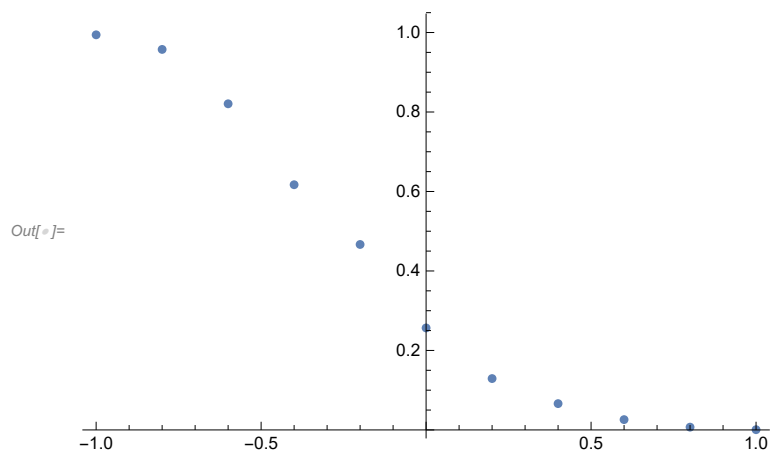
Out[]= 5892

Out[]= 7

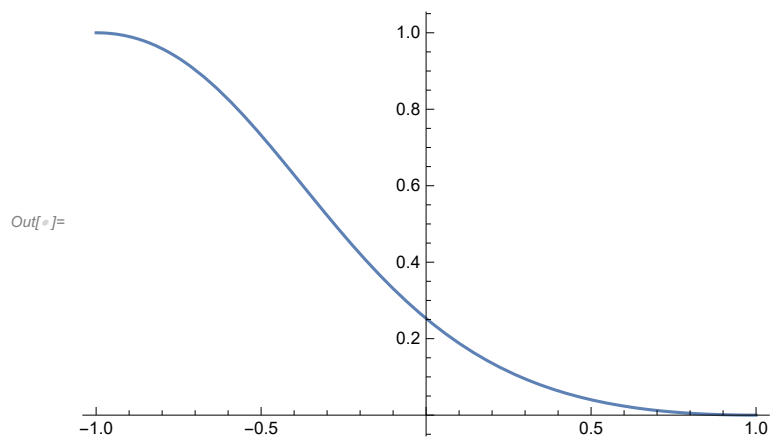
Out[]= 1090

Out[]= $\left\{ \left\{ -1, \frac{1203}{1210} \right\}, \left\{ -0.8, \frac{991}{1035} \right\}, \left\{ -0.6, \frac{787}{959} \right\}, \left\{ -0.4, \frac{588}{953} \right\}, \left\{ -0.2, \frac{7}{15} \right\}, \right.$
 $\left. \left\{ 0., \frac{164}{639} \right\}, \left\{ 0.2, \frac{213}{1648} \right\}, \left\{ 0.4, \frac{19}{287} \right\}, \left\{ 0.6, \frac{31}{1195} \right\}, \left\{ 0.8, \frac{5}{716} \right\}, \left\{ 1, \frac{1}{1692} \right\} \right\}$

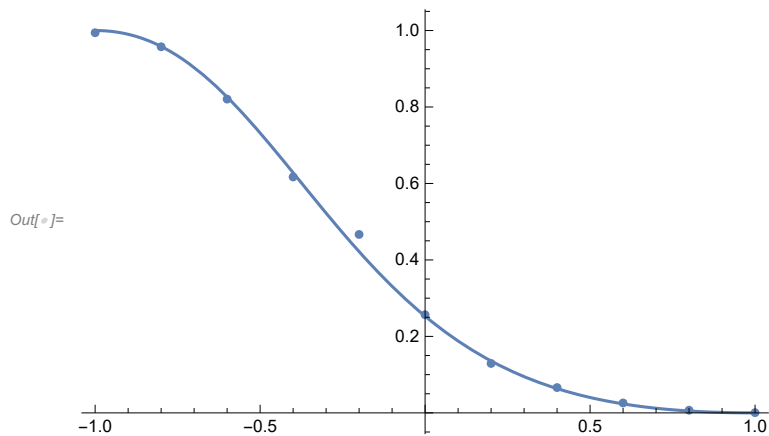
Out[]:= $\left\{ \left\{ -1, \frac{605}{4096} \right\}, \left\{ -0.8, \frac{1035}{8192} \right\}, \left\{ -0.6, \frac{959}{8192} \right\}, \left\{ -0.4, \frac{953}{8192} \right\}, \left\{ -0.2, \frac{135}{1024} \right\}, \right.$
 $\left. \left\{ 0., \frac{639}{4096} \right\}, \left\{ 0.2, \frac{103}{512} \right\}, \left\{ 0.4, \frac{2009}{8192} \right\}, \left\{ 0.6, \frac{1195}{4096} \right\}, \left\{ 0.8, \frac{179}{512} \right\}, \left\{ 1., \frac{423}{1024} \right\} \right\}$



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

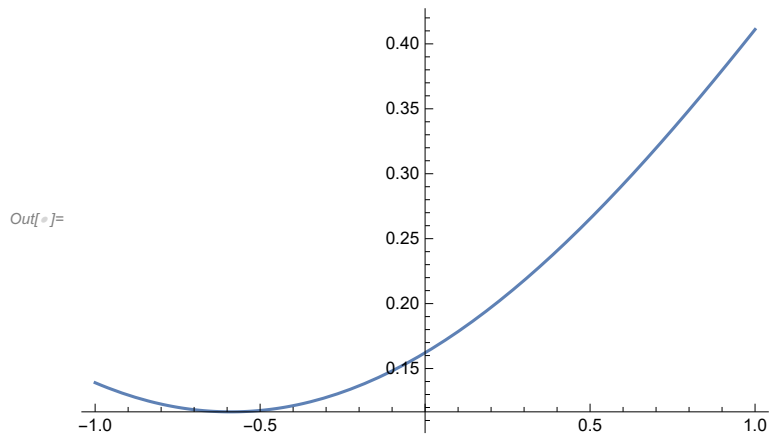


```
In[ ]:= Show[cosTH, ExpCosSqsimulatorextendedstabilizer]
```

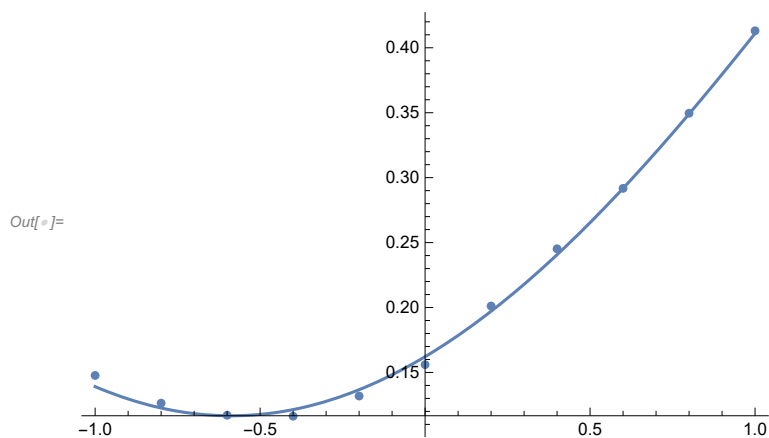


```
In[ ]:=
```

```
In[ ]:= decTH = Plot[DecisivenessFirstFunction[-x * σ, σ, π/2 - 1, 3], {x, -1, 1}]
```



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



```
In[ ]:= (*simulator_mps*)
ZeroZeroFirst10simulatormps = 0
ZeroOneFirst10simulatormps = 3246
OneZeroFirst10simulatormps = 3414
```

OneOneFirst10simulatormps = 1532

ZeroZeroFirst08simulatormps = 11
 ZeroOneFirst08simulatormps = 3760
 OneZeroFirst08simulatormps = 2803
 OneOneFirst08simulatormps = 1618

ZeroZeroFirst06simulatormps = 72
 ZeroOneFirst06simulatormps = 4078
 OneZeroFirst06simulatormps = 2320
 OneOneFirst06simulatormps = 1722

ZeroZeroFirst04simulatormps = 135
 ZeroOneFirst04simulatormps = 4558
 OneZeroFirst04simulatormps = 1792
 OneOneFirst04simulatormps = 1707

ZeroZeroFirst02simulatormps = 213
 ZeroOneFirst02simulatormps = 4917
 OneZeroFirst02simulatormps = 1392
 OneOneFirst02simulatormps = 1670

ZeroZeroFirst00simulatormps = 365
 ZeroOneFirst00simulatormps = 5224
 OneZeroFirst00simulatormps = 1008
 OneOneFirst00simulatormps = 1595

ZeroZeroSecond02simulatormps = 496
 ZeroOneSecond02simulatormps = 5542
 OneZeroSecond02simulatormps = 667
 OneOneSecond02simulatormps = 1487

ZeroZeroSecond04simulatormps = 615
 ZeroOneSecond04simulatormps = 5786
 OneZeroSecond04simulatormps = 372
 OneOneSecond04simulatormps = 1419

ZeroZeroSecond06simulatormps = 758
 ZeroOneSecond06simulatormps = 5915
 OneZeroSecond06simulatormps = 183
 OneOneSecond06simulatormps = 1336

ZeroZeroSecond08simulatormps = 964
 ZeroOneSecond08simulatormps = 5993
 OneZeroSecond08simulatormps = 52
 OneOneSecond08simulatormps = 1183

ZeroZeroSecond10simulatormps = 1142
 ZeroOneSecond10simulatormps = 5990
 OneZeroSecond10simulatormps = 0
 OneOneSecond10simulatormps = 1060

```

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[]= 3246

Out[]= 3414

Out[]= 1532

Out[]= 11

Out[]= 3760

Out[]= 2803

Out[]= 1618

Out[]= 72

Out[]= 4078

Out[]= 2320

Out[]= 1722

Out[]= 135

Out[]= 4558

Out[]= 1792

Out[]= 1707

Out[]= 213

Out[]= 4917

Out[]= 1392

Out[]= 1670

Out[]= 365

Out[]= 5224

Out[]= 1008

Out[]= 1595

Out[]= 496

Out[]= 5542

Out[]= 667

Out[]= 1487

Out[]= 615

Out[]= 5786

Out[]= 372

Out[]= 1419

Out[]= 758

Out[]= 5915

Out[]= 183

Out[]= 1336

Out[]= 964

Out[]= 5993

Out[]= 52

Out[]= 1183

Out[]= 1142

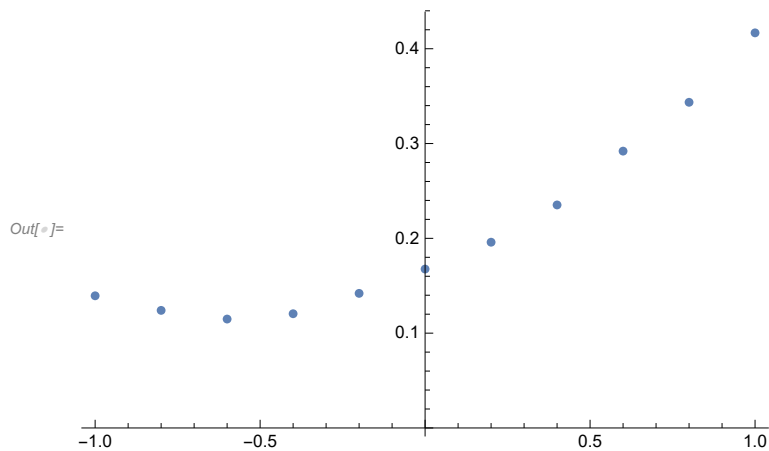
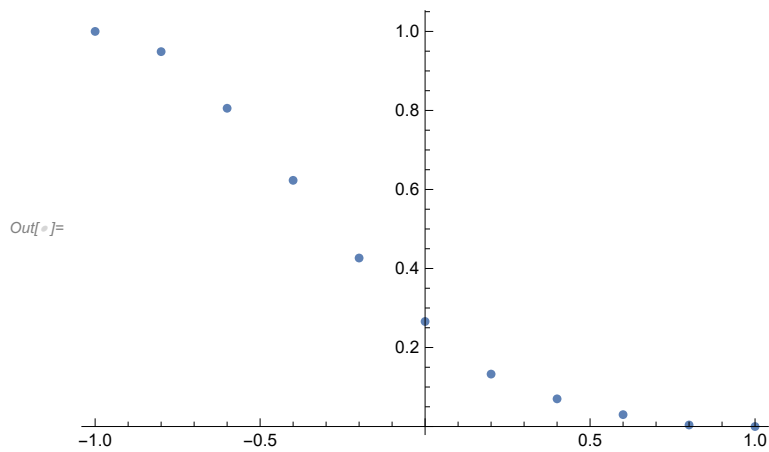
Out[]= 5990

Out[]= 0

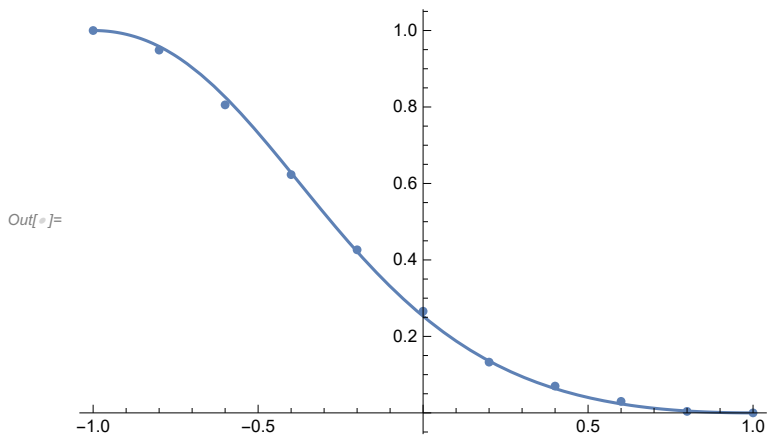
Out[]= 1060

Out[]= $\left\{ \left\{ -1, 1 \right\}, \left\{ -0.8, \frac{241}{254} \right\}, \left\{ -0.6, \frac{758}{941} \right\}, \left\{ -0.4, \frac{205}{329} \right\}, \left\{ -0.2, \frac{496}{1163} \right\}, \right.$
 $\left. \left\{ 0., \frac{365}{1373} \right\}, \left\{ 0.2, \frac{71}{535} \right\}, \left\{ 0.4, \frac{135}{1927} \right\}, \left\{ 0.6, \frac{9}{299} \right\}, \left\{ 0.8, \frac{11}{2814} \right\}, \left\{ 1, 0 \right\} \right\}$

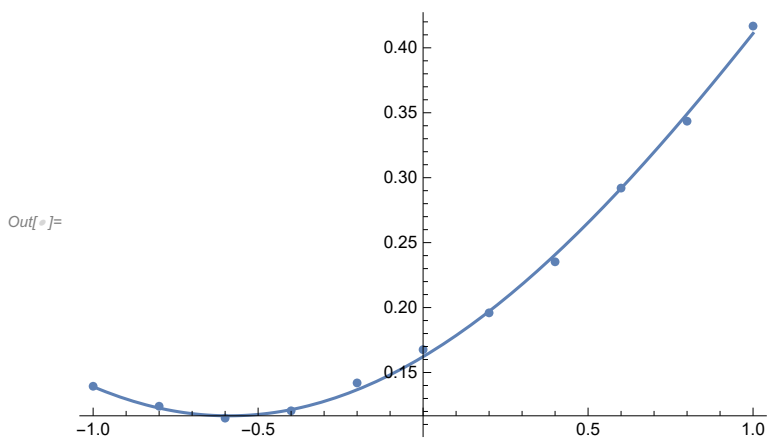
Out[]= $\left\{ \left\{ -1, \frac{571}{4096} \right\}, \left\{ -0.8, \frac{127}{1024} \right\}, \left\{ -0.6, \frac{941}{8192} \right\}, \left\{ -0.4, \frac{987}{8192} \right\}, \left\{ -0.2, \frac{1163}{8192} \right\}, \right.$
 $\left. \left\{ 0., \frac{1373}{8192} \right\}, \left\{ 0.2, \frac{1605}{8192} \right\}, \left\{ 0.4, \frac{1927}{8192} \right\}, \left\{ 0.6, \frac{299}{1024} \right\}, \left\{ 0.8, \frac{1407}{4096} \right\}, \left\{ 1., \frac{1707}{4096} \right\} \right\}$



In[]:= Show[cosTH, ExpCosSqsimulatormps]



In[]:= Show[decTH, ExpDecisivenesssimulatormps]



In[]:= (*simulator_statevector*)

ZeroZeroFirst10simulatorstatevector = 0
 ZeroOneFirst10simulatorstatevector = 3221
 OneZeroFirst10simulatorstatevector = 3388
 OneOneFirst10simulatorstatevector = 1583

ZeroZeroFirst08simulatorstatevector = 14
 ZeroOneFirst08simulatorstatevector = 3614
 OneZeroFirst08simulatorstatevector = 2927
 OneOneFirst08simulatorstatevector = 1637

ZeroZeroFirst06simulatorstatevector = 62
 ZeroOneFirst06simulatorstatevector = 4163
 OneZeroFirst06simulatorstatevector = 2319
 OneOneFirst06simulatorstatevector = 1648

ZeroZeroFirst04simulatorstatevector = 106
 ZeroOneFirst04simulatorstatevector = 4610
 OneZeroFirst04simulatorstatevector = 1895
 OneOneFirst04simulatorstatevector = 1581

```

ZeroZeroFirst02simulatorstatevector = 221
ZeroOneFirst02simulatorstatevector = 4938
OneZeroFirst02simulatorstatevector = 1412
OneOneFirst02simulatorstatevector = 1621

```

```

ZeroZeroFirst00simulatorstatevector = 345
ZeroOneFirst00simulatorstatevector = 5296
OneZeroFirst00simulatorstatevector = 996
OneOneFirst00simulatorstatevector = 1555

```

```

ZeroZeroSecond02simulatorstatevector = 457
ZeroOneSecond02simulatorstatevector = 5619
OneZeroSecond02simulatorstatevector = 620
OneOneSecond02simulatorstatevector = 1496

```

```

ZeroZeroSecond04simulatorstatevector = 648
ZeroOneSecond04simulatorstatevector = 5663
OneZeroSecond04simulatorstatevector = 343
OneOneSecond04simulatorstatevector = 1538

```

```

ZeroZeroSecond06simulatorstatevector = 836
ZeroOneSecond06simulatorstatevector = 5876
OneZeroSecond06simulatorstatevector = 159
OneOneSecond06simulatorstatevector = 1321

```

```

ZeroZeroSecond08simulatorstatevector = 992
ZeroOneSecond08simulatorstatevector = 5916
OneZeroSecond08simulatorstatevector = 43
OneOneSecond08simulatorstatevector = 1241

```

```

ZeroZeroSecond10simulatorstatevector = 1158
ZeroOneSecond10simulatorstatevector = 5925
OneZeroSecond10simulatorstatevector = 0
OneOneSecond10simulatorstatevector = 1109

```

```

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[]= 3221

Out[]= 3388

Out[]= 1583

Out[]= 14

Out[]= 3614

Out[]= 2927

Out[]= 1637

Out[]= 62

Out[]= 4163

Out[]= 2319

Out[]= 1648

Out[]= 106

Out[]= 4610

Out[]= 1895

Out[]= 1581

Out[]= 221

Out[]= 4938

Out[]= 1412

Out[]= 1621

Out[]= 345

Out[]= 5296

Out[]= 996

Out[]= 1555

Out[]= 457

Out[]= 5619

Out[]= 620

Out[]= 1496

Out[]= 648

Out[]= 5663

Out[]= 343

Out[]= 1538

Out[]= 836

Out[]= 5876

Out[]= 159

Out[]= 1321

Out[]= 992

Out[]= 5916

Out[]= 43

Out[]= 1241

Out[]= 1158

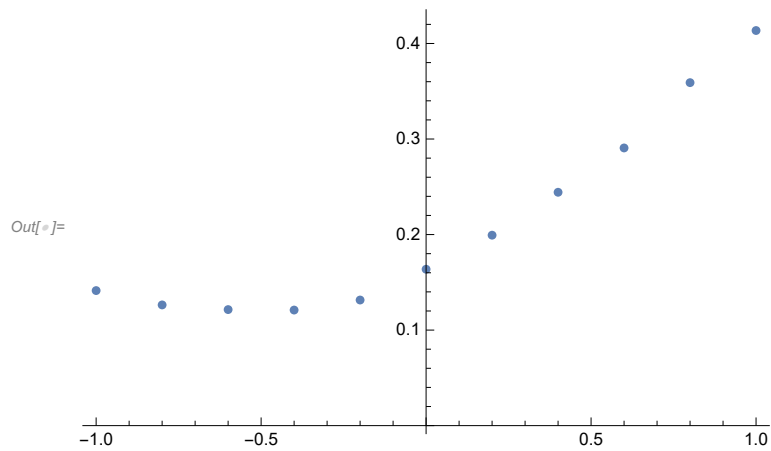
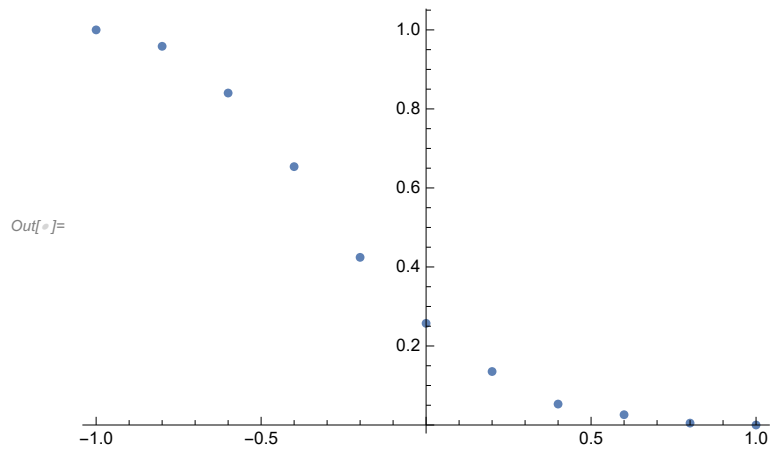
Out[]= 5925

Out[]= 0

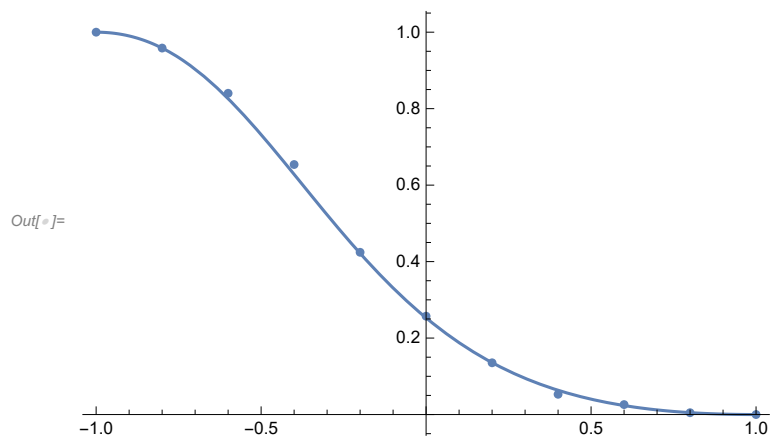
Out[]= 1109

Out[]= $\left\{ \{-1, 1\}, \left\{-0.8, \frac{992}{1035}\right\}, \left\{-0.6, \frac{836}{995}\right\}, \left\{-0.4, \frac{648}{991}\right\}, \left\{-0.2, \frac{457}{1077}\right\}, \right.$
 $\left. \left\{0., \frac{115}{447}\right\}, \left\{0.2, \frac{221}{1633}\right\}, \left\{0.4, \frac{106}{2001}\right\}, \left\{0.6, \frac{62}{2381}\right\}, \left\{0.8, \frac{14}{2941}\right\}, \{1, 0\} \right\}$

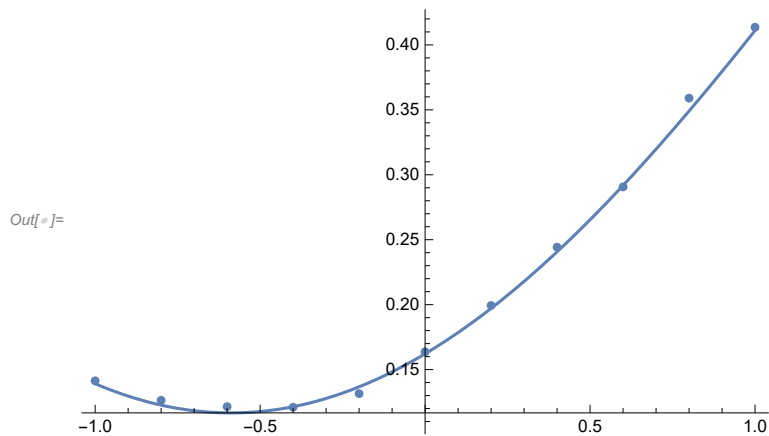
Out[]:= $\left\{ \left\{ -1, \frac{579}{4096} \right\}, \left\{ -0.8, \frac{1035}{8192} \right\}, \left\{ -0.6, \frac{995}{8192} \right\}, \left\{ -0.4, \frac{991}{8192} \right\}, \left\{ -0.2, \frac{1077}{8192} \right\}, \right.$
 $\left. \left\{ 0., \frac{1341}{8192} \right\}, \left\{ 0.2, \frac{1633}{8192} \right\}, \left\{ 0.4, \frac{2001}{8192} \right\}, \left\{ 0.6, \frac{2381}{8192} \right\}, \left\{ 0.8, \frac{2941}{8192} \right\}, \left\{ 1., \frac{847}{2048} \right\} \right\}$



In[]:= Show[cosh, ExpCosQsimulatorstatevector]



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



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

```
ZeroZeroFirst10ibmnairobi = 347
ZeroOneFirst10ibmnairobi = 3180
OneZeroFirst10ibmnairobi = 3257
OneOneFirst10ibmnairobi = 1408
```

```
ZeroZeroFirst08ibmnairobi = 345
ZeroOneFirst08ibmnairobi = 3624
OneZeroFirst08ibmnairobi = 2745
OneOneFirst08ibmnairobi = 1478
```

```
ZeroZeroFirst06ibmnairobi = 405
ZeroOneFirst06ibmnairobi = 3952
OneZeroFirst06ibmnairobi = 2334
OneOneFirst06ibmnairobi = 1501
```

```
ZeroZeroFirst04ibmnairobi = 423
ZeroOneFirst04ibmnairobi = 4467
OneZeroFirst04ibmnairobi = 1812
OneOneFirst04ibmnairobi = 1490
```

```
ZeroZeroFirst02ibmnairobi = 495
ZeroOneFirst02ibmnairobi = 4733
OneZeroFirst02ibmnairobi = 1386
OneOneFirst02ibmnairobi = 1578
```

```
ZeroZeroFirst00ibmnairobi = 632
ZeroOneFirst00ibmnairobi = 4953
OneZeroFirst00ibmnairobi = 1024
OneOneFirst00ibmnairobi = 1583
```

```
ZeroZeroSecond02ibmnairobi = 761
ZeroOneSecond02ibmnairobi = 5088
OneZeroSecond02ibmnairobi = 770
OneOneSecond02ibmnairobi = 1573
```



```

ZeroZeroSecond04ibmnairobi = 852
ZeroOneSecond04ibmnairobi = 5311
OneZeroSecond04ibmnairobi = 535
OneOneSecond04ibmnairobi = 1494

```

```

ZeroZeroSecond06ibmnairobi = 1021
ZeroOneSecond06ibmnairobi = 5362
OneZeroSecond06ibmnairobi = 337
OneOneSecond06ibmnairobi = 1472

```

```

ZeroZeroSecond08ibmnairobi = 1208
ZeroOneSecond08ibmnairobi = 5315
OneZeroSecond08ibmnairobi = 212
OneOneSecond08ibmnairobi = 1457

```

```

ZeroZeroSecond10ibmnairobi = 1325
ZeroOneSecond10ibmnairobi = 5260
OneZeroSecond10ibmnairobi = 200
OneOneSecond10ibmnairobi = 1407

```

```

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[]=` 347

`Out[]=` 3180

`Out[]=` 3257

`Out[]=` 1408

`Out[]=` 345

`Out[]=` 3624

`Out[]=` 2745

`Out[]=` 1478

`Out[]=` 405

`Out[]=` 3952

`Out[]=` 2334

`Out[]=` 1501

`Out[]=` 423

`Out[]=` 4467

`Out[]=` 1812

`Out[]=` 1490

`Out[]=` 495

`Out[]=` 4733

`Out[]=` 1386

`Out[]=` 1578

`Out[]=` 632

`Out[]=` 4953

`Out[]=` 1024

`Out[]=` 1583

`Out[]=` 761

`Out[]=` 5088

`Out[]=` 770

`Out[]=` 1573

`Out[]=` 852

`Out[]=` 5311

`Out[]=` 535

Out[]= 1494

Out[]= 1021

Out[]= 5362

Out[]= 337

Out[]= 1472

Out[]= 1208

Out[]= 5315

Out[]= 212

Out[]= 1457

Out[]= 1325

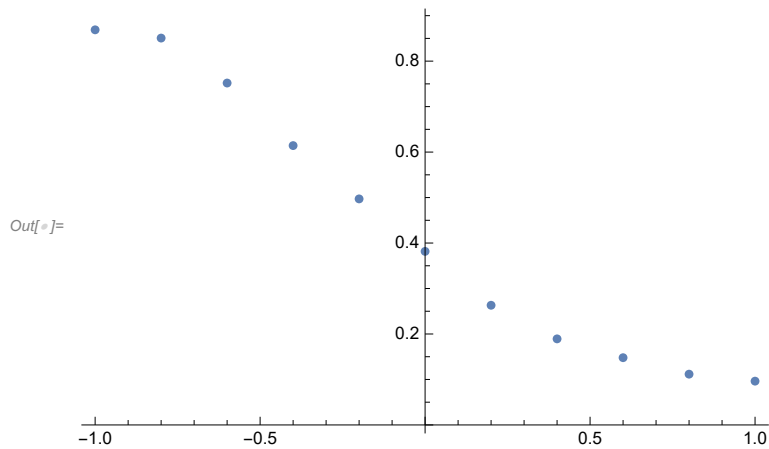
Out[]= 5260

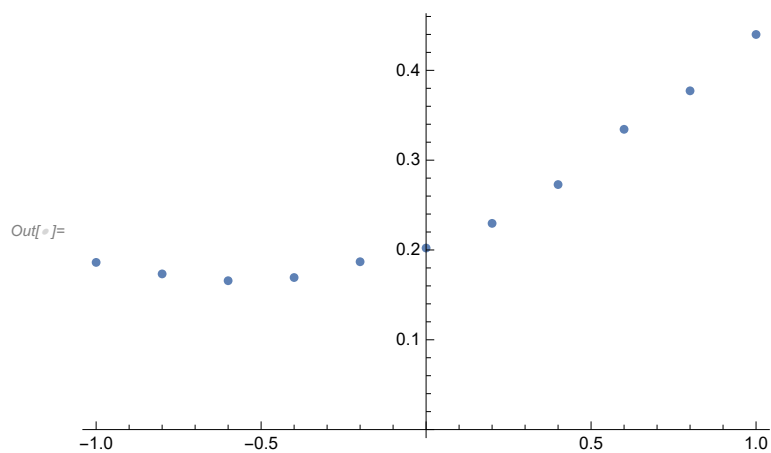
Out[]= 200

Out[]= 1407

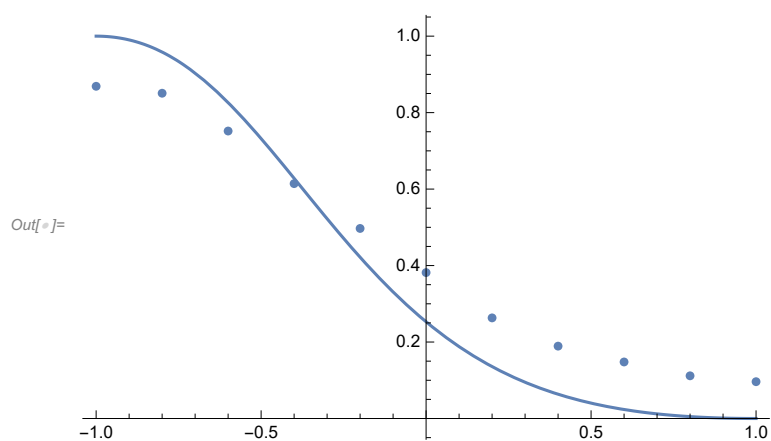
Out[]= $\left\{ \left\{ -1, \frac{53}{61} \right\}, \left\{ -0.8, \frac{302}{355} \right\}, \left\{ -0.6, \frac{1021}{1358} \right\}, \left\{ -0.4, \frac{852}{1387} \right\}, \left\{ -0.2, \frac{761}{1531} \right\}, \right.$
 $\left. \left\{ 0., \frac{79}{207} \right\}, \left\{ 0.2, \frac{5}{19} \right\}, \left\{ 0.4, \frac{141}{745} \right\}, \left\{ 0.6, \frac{135}{913} \right\}, \left\{ 0.8, \frac{23}{206} \right\}, \left\{ 1, \frac{347}{3604} \right\} \right\}$

Out[]= $\left\{ \left\{ -1, \frac{1525}{8192} \right\}, \left\{ -0.8, \frac{355}{2048} \right\}, \left\{ -0.6, \frac{679}{4096} \right\}, \left\{ -0.4, \frac{1387}{8192} \right\}, \left\{ -0.2, \frac{1531}{8192} \right\}, \right.$
 $\left. \left\{ 0., \frac{207}{1024} \right\}, \left\{ 0.2, \frac{1881}{8192} \right\}, \left\{ 0.4, \frac{2235}{8192} \right\}, \left\{ 0.6, \frac{2739}{8192} \right\}, \left\{ 0.8, \frac{1545}{4096} \right\}, \left\{ 1., \frac{901}{2048} \right\} \right\}$

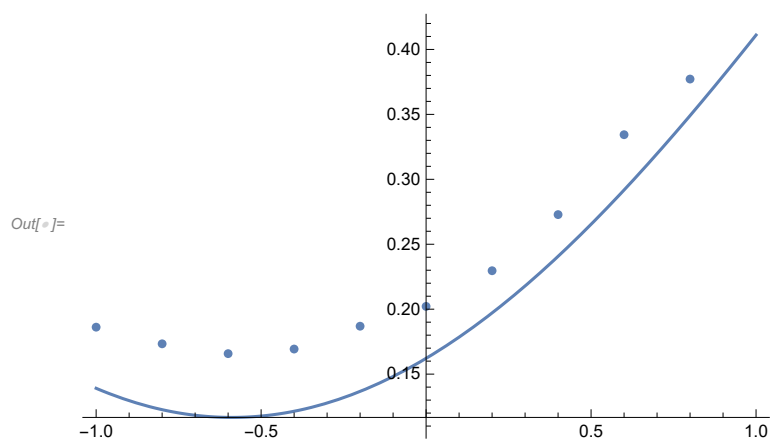




In[]:= **Show[cosTH, ExpCosSqibmnairobi]**



In[]:= **Show[decTH, ExpDecisivenessibmnairobi]**



In[]:= **(*ibm_oslo*)**

ZeroZeroFirst10ibmoslo = 166

ZeroOneFirst10ibmoslo = 3196

OneZeroFirst10ibmoslo = 3281

OneOneFirst10ibmoslo = 1549

ZeroZeroFirst08ibmoslo = 164

ZeroOneFirst08ibmoslo = 3572
 OneZeroFirst08ibmoslo = 2839
 OneOneFirst08ibmoslo = 1617

ZeroZeroFirst06ibmoslo = 239
 ZeroOneFirst06ibmoslo = 3994
 OneZeroFirst06ibmoslo = 2378
 OneOneFirst06ibmoslo = 1581

ZeroZeroFirst04ibmoslo = 274
 ZeroOneFirst04ibmoslo = 4472
 OneZeroFirst04ibmoslo = 1890
 OneOneFirst04ibmoslo = 1556

ZeroZeroFirst02ibmoslo = 402
 ZeroOneFirst02ibmoslo = 4780
 OneZeroFirst02ibmoslo = 1499
 OneOneFirst02ibmoslo = 1511

ZeroZeroFirst00ibmoslo = 483
 ZeroOneFirst00ibmoslo = 5129
 OneZeroFirst00ibmoslo = 1088
 OneOneFirst00ibmoslo = 1492

ZeroZeroSecond02ibmoslo = 657
 ZeroOneSecond02ibmoslo = 5319
 OneZeroSecond02ibmoslo = 766
 OneOneSecond02ibmoslo = 1450

ZeroZeroSecond04ibmoslo = 776
 ZeroOneSecond04ibmoslo = 5480
 OneZeroSecond04ibmoslo = 543
 OneOneSecond04ibmoslo = 1393

ZeroZeroSecond06ibmoslo = 1014
 ZeroOneSecond06ibmoslo = 5588
 OneZeroSecond06ibmoslo = 317
 OneOneSecond06ibmoslo = 1273

ZeroZeroSecond08ibmoslo = 1167
 ZeroOneSecond08ibmoslo = 5620
 OneZeroSecond08ibmoslo = 219
 OneOneSecond08ibmoslo = 1186

ZeroZeroSecond10ibmoslo = 1404
 ZeroOneSecond10ibmoslo = 5582
 OneZeroSecond10ibmoslo = 151
 OneOneSecond10ibmoslo = 1055

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

```

{-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[]= 166

Out[]= 3196

Out[]= 3281

Out[]= 1549

Out[]= 164

Out[]= 3572

Out[]= 2839

Out[]= 1617

Out[]= 239

Out[]= 3994

Out[]= 2378

Out[]= 1581

Out[]= 274

Out[]= 4472

Out[]= 1890

Out[]= 1556

$\text{Out}[*]= 402$

$\text{Out}[*]= 4780$

$\text{Out}[*]= 1499$

$\text{Out}[*]= 1511$

$\text{Out}[*]= 483$

$\text{Out}[*]= 5129$

$\text{Out}[*]= 1088$

$\text{Out}[*]= 1492$

$\text{Out}[*]= 657$

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

$\text{Out}[*]= 766$

$\text{Out}[*]= 1450$

$\text{Out}[*]= 776$

$\text{Out}[*]= 5480$

$\text{Out}[*]= 543$

$\text{Out}[*]= 1393$

$\text{Out}[*]= 1014$

$\text{Out}[*]= 5588$

$\text{Out}[*]= 317$

$\text{Out}[*]= 1273$

$\text{Out}[*]= 1167$

$\text{Out}[*]= 5620$

$\text{Out}[*]= 219$

$\text{Out}[*]= 1186$

$\text{Out}[*]= 1404$

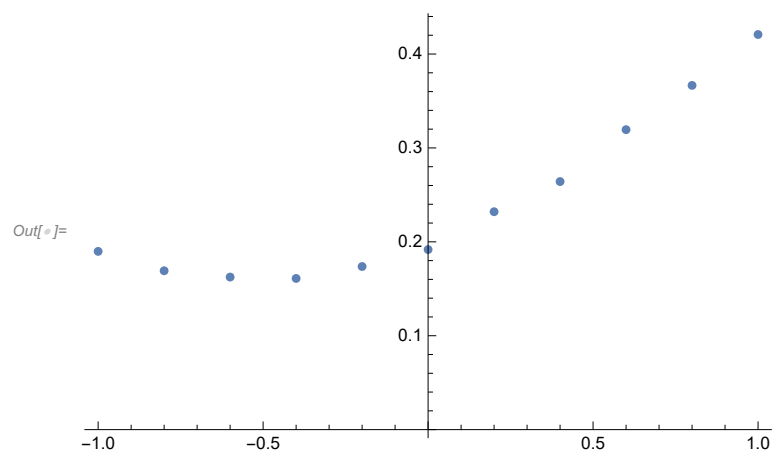
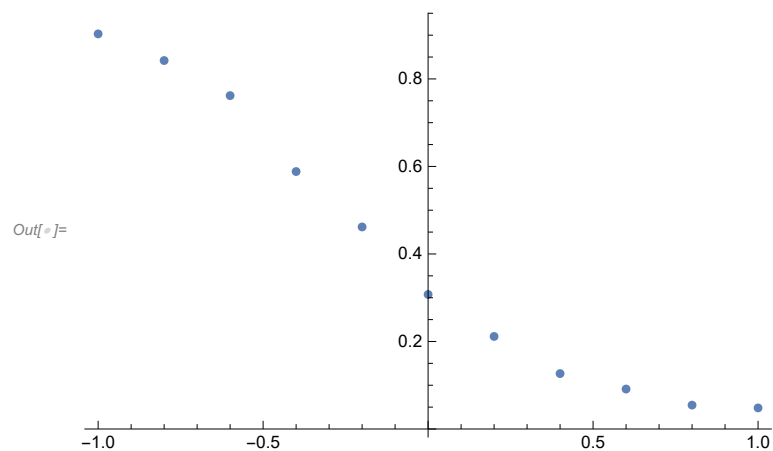
$\text{Out}[*]= 5582$

$\text{Out}[*]= 151$

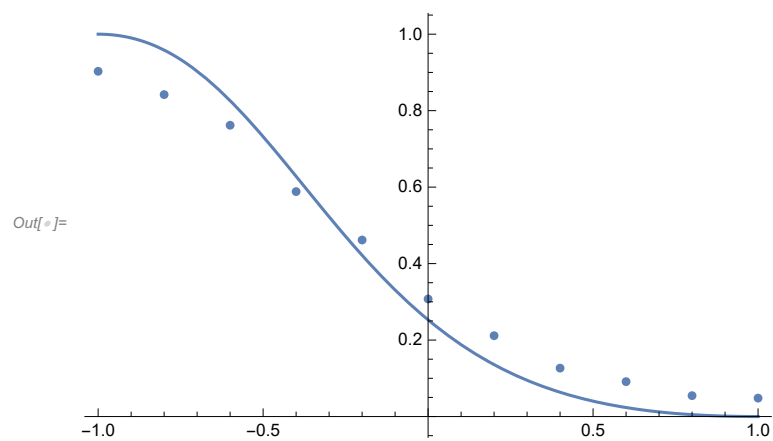
$\text{Out}[*]= 1055$

$\text{Out}[*]= \left\{ \left\{ -1, \frac{1404}{1555} \right\}, \left\{ -0.8, \frac{389}{462} \right\}, \left\{ -0.6, \frac{1014}{1331} \right\}, \left\{ -0.4, \frac{776}{1319} \right\}, \left\{ -0.2, \frac{657}{1423} \right\}, \right. \\ \left. \left\{ 0., \frac{483}{1571} \right\}, \left\{ 0.2, \frac{402}{1901} \right\}, \left\{ 0.4, \frac{137}{1082} \right\}, \left\{ 0.6, \frac{239}{2617} \right\}, \left\{ 0.8, \frac{164}{3003} \right\}, \left\{ 1, \frac{166}{3447} \right\} \right\}$

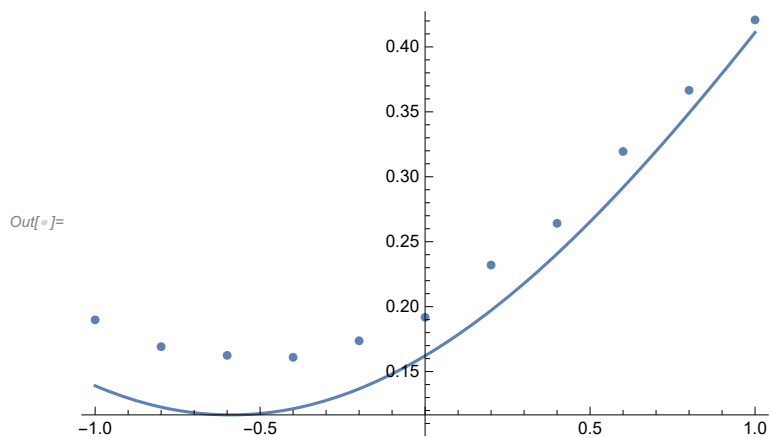
Out[]:= $\left\{ \left\{ -1, \frac{1555}{8192} \right\}, \left\{ -0.8, \frac{693}{4096} \right\}, \left\{ -0.6, \frac{1331}{8192} \right\}, \left\{ -0.4, \frac{1319}{8192} \right\}, \left\{ -0.2, \frac{1423}{8192} \right\}, \right.$
 $\left. \left\{ 0., \frac{1571}{8192} \right\}, \left\{ 0.2, \frac{1901}{8192} \right\}, \left\{ 0.4, \frac{541}{2048} \right\}, \left\{ 0.6, \frac{2617}{8192} \right\}, \left\{ 0.8, \frac{3003}{8192} \right\}, \left\{ 1., \frac{3447}{8192} \right\} \right\}$



In[]:= Show[cosh, ExpCosSqibmoslo]



In[]:= Show[decTH, ExpDecisivenessibmoslo]



In[]:= (*ibmq_manila*)

ZeroZeroFirst10ibmqmanila = 221
 ZeroOneFirst10ibmqmanila = 3372
 OneZeroFirst10ibmqmanila = 3110
 OneOneFirst10ibmqmanila = 1489

ZeroZeroFirst08ibmqmanila = 240
 ZeroOneFirst08ibmqmanila = 3588
 OneZeroFirst08ibmqmanila = 2744
 OneOneFirst08ibmqmanila = 1620

ZeroZeroFirst06ibmqmanila = 290
 ZeroOneFirst06ibmqmanila = 4147
 OneZeroFirst06ibmqmanila = 2222
 OneOneFirst06ibmqmanila = 1533

ZeroZeroFirst04ibmqmanila = 301
 ZeroOneFirst04ibmqmanila = 4555
 OneZeroFirst04ibmqmanila = 1845
 OneOneFirst04ibmqmanila = 1491

ZeroZeroFirst02ibmqmanila = 422
 ZeroOneFirst02ibmqmanila = 4848
 OneZeroFirst02ibmqmanila = 1445
 OneOneFirst02ibmqmanila = 1477

ZeroZeroFirst00ibmqmanila = 468
 ZeroOneFirst00ibmqmanila = 5248
 OneZeroFirst00ibmqmanila = 1025
 OneOneFirst00ibmqmanila = 1451

ZeroZeroSecond02ibmqmanila = 608
 ZeroOneSecond02ibmqmanila = 5503
 OneZeroSecond02ibmqmanila = 694
 OneOneSecond02ibmqmanila = 1387

```

ZeroZeroSecond04ibmqmanila = 776
ZeroOneSecond04ibmqmanila = 5671
OneZeroSecond04ibmqmanila = 475
OneOneSecond04ibmqmanila = 1270

```

```

ZeroZeroSecond06ibmqmanila = 887
ZeroOneSecond06ibmqmanila = 5875
OneZeroSecond06ibmqmanila = 268
OneOneSecond06ibmqmanila = 1162

```

```

ZeroZeroSecond08ibmqmanila = 1074
ZeroOneSecond08ibmqmanila = 5874
OneZeroSecond08ibmqmanila = 160
OneOneSecond08ibmqmanila = 1084

```

```

ZeroZeroSecond10ibmqmanila = 1313
ZeroOneSecond10ibmqmanila = 5860
OneZeroSecond10ibmqmanila = 143
OneOneSecond10ibmqmanila = 876

```

```

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[]= 221

Out[]= 3372

Out[]= 3110

Out[]= 1489

Out[]= 240

Out[]= 3588

Out[]= 2744

Out[]= 1620

Out[]= 290

Out[]= 4147

Out[]= 2222

Out[]= 1533

Out[]= 301

Out[]= 4555

Out[]= 1845

Out[]= 1491

Out[]= 422

Out[]= 4848

Out[]= 1445

Out[]= 1477

Out[]= 468

Out[]= 5248

Out[]= 1025

Out[]= 1451

Out[]= 608

Out[]= 5503

Out[]= 694

Out[]= 1387

Out[]= 776

Out[]= 5671

Out[]= 475

Out[]= 1270

Out[]= 887

Out[]= 5875

Out[]= 268

Out[]= 1162

Out[]= 1074

Out[]= 5874

Out[]= 160

Out[]= 1084

Out[]= 1313

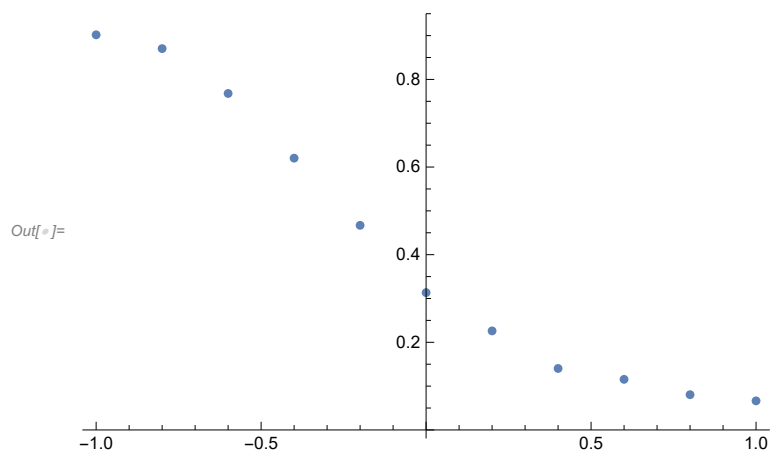
Out[]= 5860

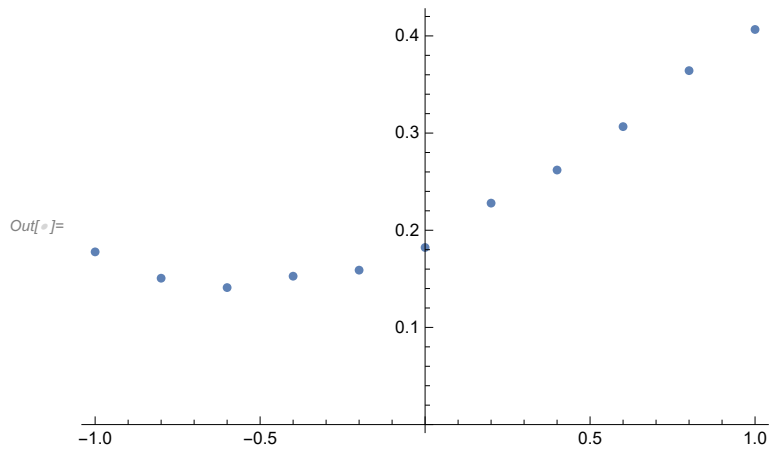
Out[]= 143

Out[]= 876

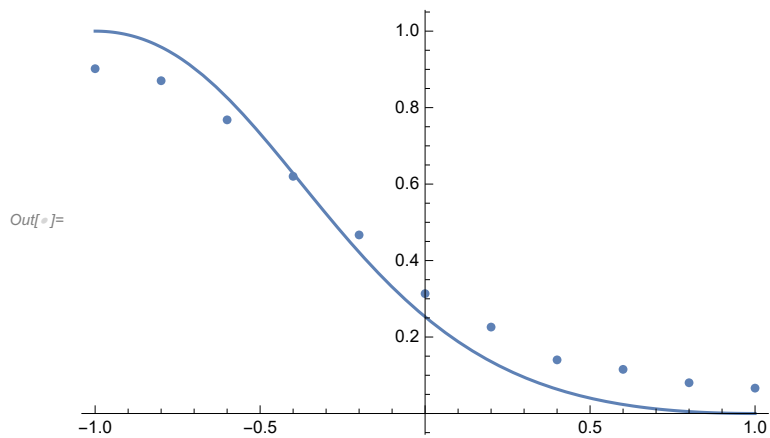
Out[]= $\left\{ \left\{ -1, \frac{101}{112} \right\}, \left\{ -0.8, \frac{537}{617} \right\}, \left\{ -0.6, \frac{887}{1155} \right\}, \left\{ -0.4, \frac{776}{1251} \right\}, \left\{ -0.2, \frac{304}{651} \right\}, \right.$
 $\left. \left\{ 0., \frac{468}{1493} \right\}, \left\{ 0.2, \frac{422}{1867} \right\}, \left\{ 0.4, \frac{301}{2146} \right\}, \left\{ 0.6, \frac{145}{1256} \right\}, \left\{ 0.8, \frac{30}{373} \right\}, \left\{ 1, \frac{221}{3331} \right\} \right\}$

Out[]= $\left\{ \left\{ -1, \frac{91}{512} \right\}, \left\{ -0.8, \frac{617}{4096} \right\}, \left\{ -0.6, \frac{1155}{8192} \right\}, \left\{ -0.4, \frac{1251}{8192} \right\}, \left\{ -0.2, \frac{651}{4096} \right\}, \right.$
 $\left. \left\{ 0., \frac{1493}{8192} \right\}, \left\{ 0.2, \frac{1867}{8192} \right\}, \left\{ 0.4, \frac{1073}{4096} \right\}, \left\{ 0.6, \frac{157}{512} \right\}, \left\{ 0.8, \frac{373}{1024} \right\}, \left\{ 1., \frac{3331}{8192} \right\} \right\}$

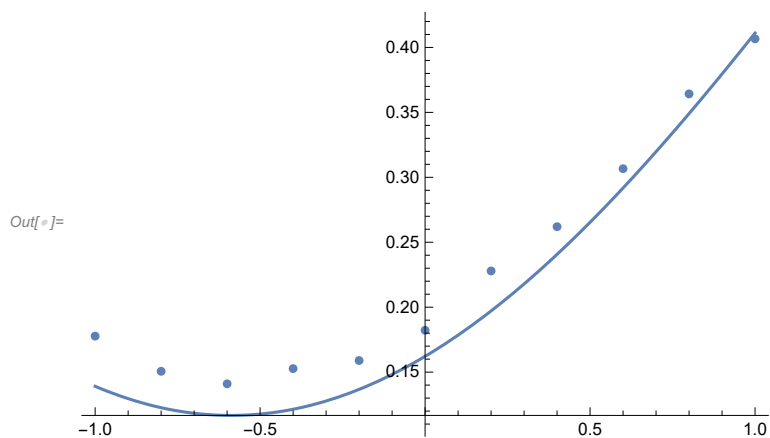




In[]:= Show[cosTH, ExpCosSqibmqmanila]



In[]:= Show[decTH, ExpDecisivenessibmqmanila]



In[]:= (*ibmq_quito*)

ZeroZeroFirst10ibmqquito = 492

ZeroOneFirst10ibmqquito = 3289

OneZeroFirst10ibmqquito = 2693

OneOneFirst10ibmqquito = 1718

ZeroZeroFirst08ibmqquito = 583

```
ZeroOneFirst08ibmqquito = 3625
OneZeroFirst08ibmqquito = 2376
OneOneFirst08ibmqquito = 1608
```

```
ZeroZeroFirst06ibmqquito = 610
ZeroOneFirst06ibmqquito = 3993
OneZeroFirst06ibmqquito = 1897
OneOneFirst06ibmqquito = 1692
```

```
ZeroZeroFirst04ibmqquito = 642
ZeroOneFirst04ibmqquito = 4360
OneZeroFirst04ibmqquito = 1537
OneOneFirst04ibmqquito = 1653
```

```
ZeroZeroFirst02ibmqquito = 787
ZeroOneFirst02ibmqquito = 4653
OneZeroFirst02ibmqquito = 1248
OneOneFirst02ibmqquito = 1504
```

```
ZeroZeroFirst00ibmqquito = 897
ZeroOneFirst00ibmqquito = 4735
OneZeroFirst00ibmqquito = 1002
OneOneFirst00ibmqquito = 1558
```

```
ZeroZeroSecond02ibmqquito = 1032
ZeroOneSecond02ibmqquito = 5031
OneZeroSecond02ibmqquito = 685
OneOneSecond02ibmqquito = 1444
```

```
ZeroZeroSecond04ibmqquito = 1164
ZeroOneSecond04ibmqquito = 5251
OneZeroSecond04ibmqquito = 460
OneOneSecond04ibmqquito = 1317
```

```
ZeroZeroSecond06ibmqquito = 1380
ZeroOneSecond06ibmqquito = 5224
OneZeroSecond06ibmqquito = 364
OneOneSecond06ibmqquito = 1224
```

```
ZeroZeroSecond08ibmqquito = 1484
ZeroOneSecond08ibmqquito = 5335
OneZeroSecond08ibmqquito = 259
OneOneSecond08ibmqquito = 1114
```

```
ZeroZeroSecond10ibmqquito = 1654
ZeroOneSecond10ibmqquito = 5163
OneZeroSecond10ibmqquito = 270
OneOneSecond10ibmqquito = 1105
```

```
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[]= 492

Out[]= 3289

Out[]= 2693

Out[]= 1718

Out[]= 583

Out[]= 3625

Out[]= 2376

Out[]= 1608

Out[]= 610

Out[]= 3993

Out[]= 1897

Out[]= 1692

Out[]= 642

Out[]= 4360

Out[]= 1537

Out[]= 1653

Out[]= 787

Out[]= 4653

Out[]= 1248

Out[]= 1504

Out[]= 897

Out[]= 4735

Out[]= 1002

Out[]= 1558

Out[]= 1032

Out[]= 5031

Out[]= 685

Out[]= 1444

Out[]= 1164

Out[]= 5251

Out[]= 460

Out[]= 1317

Out[]= 1380

Out[]= 5224

Out[]= 364

Out[]= 1224

Out[]= 1484

Out[]= 5335

Out[]= 259

Out[]= 1114

Out[]= 1654

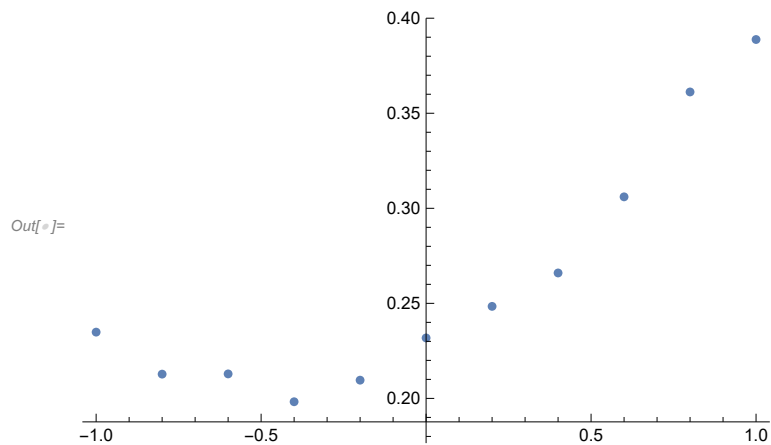
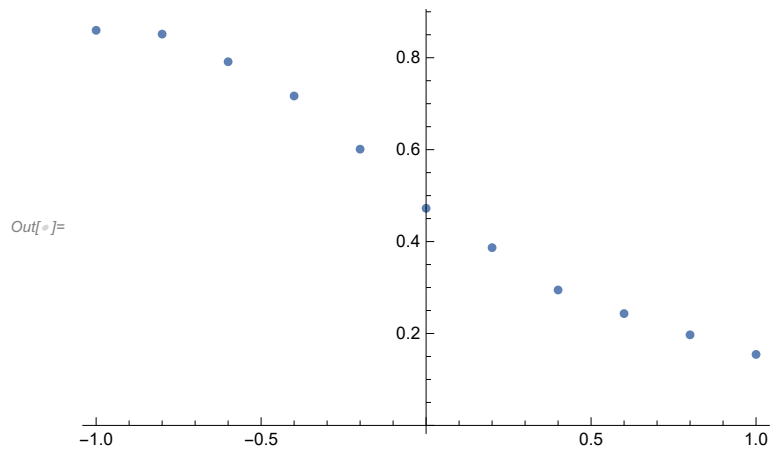
Out[]= 5163

Out[]= 270

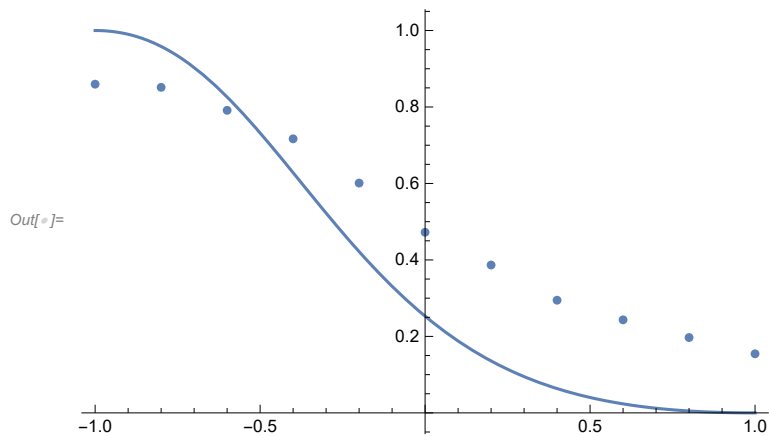
Out[]= 1105

$$\text{Out}[*]= \left\{ \left\{ -1, \frac{827}{962} \right\}, \left\{ -0.8, \frac{212}{249} \right\}, \left\{ -0.6, \frac{345}{436} \right\}, \left\{ -0.4, \frac{291}{406} \right\}, \left\{ -0.2, \frac{1032}{1717} \right\}, \right. \\ \left. \left\{ 0., \frac{299}{633} \right\}, \left\{ 0.2, \frac{787}{2035} \right\}, \left\{ 0.4, \frac{642}{2179} \right\}, \left\{ 0.6, \frac{610}{2507} \right\}, \left\{ 0.8, \frac{53}{269} \right\}, \left\{ 1, \frac{492}{3185} \right\} \right\}$$

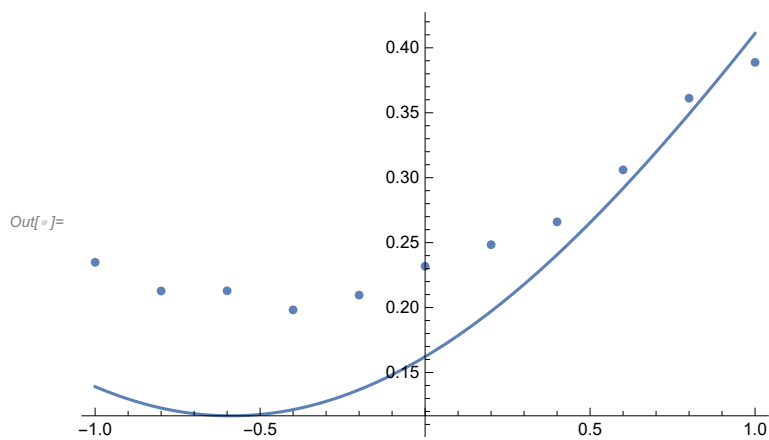
$$\text{Out}[*]= \left\{ \left\{ -1, \frac{481}{2048} \right\}, \left\{ -0.8, \frac{1743}{8192} \right\}, \left\{ -0.6, \frac{109}{512} \right\}, \left\{ -0.4, \frac{203}{1024} \right\}, \left\{ -0.2, \frac{1717}{8192} \right\}, \right. \\ \left. \left\{ 0., \frac{1899}{8192} \right\}, \left\{ 0.2, \frac{2035}{8192} \right\}, \left\{ 0.4, \frac{2179}{8192} \right\}, \left\{ 0.6, \frac{2507}{8192} \right\}, \left\{ 0.8, \frac{2959}{8192} \right\}, \left\{ 1., \frac{3185}{8192} \right\} \right\}$$



In[]:= Show[cosTH, ExpCosSqibmqquito]



In[]:= Show[decTH, ExpDecisivenessibmqquito]



In[]:= (*ibmq_lima*)

ZeroZeroFirst10ibmqlima = 526
 ZeroOneFirst10ibmqlima = 2882
 OneZeroFirst10ibmqlima = 3414
 OneOneFirst10ibmqlima = 1370

ZeroZeroFirst08ibmqlima = 577
 ZeroOneFirst08ibmqlima = 3293
 OneZeroFirst08ibmqlima = 2885
 OneOneFirst08ibmqlima = 1437

ZeroZeroFirst06ibmqlima = 648
 ZeroOneFirst06ibmqlima = 3640
 OneZeroFirst06ibmqlima = 2579
 OneOneFirst06ibmqlima = 1325

ZeroZeroFirst04ibmqlima = 634
 ZeroOneFirst04ibmqlima = 4088
 OneZeroFirst04ibmqlima = 2036
 OneOneFirst04ibmqlima = 1434

```

ZeroZeroFirst02ibmq1ima = 739
ZeroOneFirst02ibmq1ima = 4451
OneZeroFirst02ibmq1ima = 1551
OneOneFirst02ibmq1ima = 1451

```

```

ZeroZeroFirst00ibmq1ima = 980
ZeroOneFirst00ibmq1ima = 4737
OneZeroFirst00ibmq1ima = 1201
OneOneFirst00ibmq1ima = 1274

```

```

ZeroZeroSecond02ibmq1ima = 895
ZeroOneSecond02ibmq1ima = 5185
OneZeroSecond02ibmq1ima = 870
OneOneSecond02ibmq1ima = 1242

```

```

ZeroZeroSecond04ibmq1ima = 1093
ZeroOneSecond04ibmq1ima = 5160
OneZeroSecond04ibmq1ima = 636
OneOneSecond04ibmq1ima = 1303

```

```

ZeroZeroSecond06ibmq1ima = 1466
ZeroOneSecond06ibmq1ima = 5147
OneZeroSecond06ibmq1ima = 440
OneOneSecond06ibmq1ima = 1139

```

```

ZeroZeroSecond08ibmq1ima = 1368
ZeroOneSecond08ibmq1ima = 5410
OneZeroSecond08ibmq1ima = 315
OneOneSecond08ibmq1ima = 1099

```

```

ZeroZeroSecond10ibmq1ima = 1765
ZeroOneSecond10ibmq1ima = 5218
OneZeroSecond10ibmq1ima = 252
OneOneSecond10ibmq1ima = 957

```

```

CosSqibmq1ima =
{ {-1, ZeroZeroSecond10ibmq1ima / (OneZeroSecond10ibmq1ima + ZeroZeroSecond10ibmq1ima)},
  {-0.8, ZeroZeroSecond08ibmq1ima / (OneZeroSecond08ibmq1ima + ZeroZeroSecond08ibmq1ima)},
  {-0.6, ZeroZeroSecond06ibmq1ima / (OneZeroSecond06ibmq1ima + ZeroZeroSecond06ibmq1ima)},
  {-0.4, ZeroZeroSecond04ibmq1ima / (OneZeroSecond04ibmq1ima + ZeroZeroSecond04ibmq1ima)},
  {-0.2, ZeroZeroSecond02ibmq1ima / (OneZeroSecond02ibmq1ima + ZeroZeroSecond02ibmq1ima)},
  {0.0, ZeroZeroFirst00ibmq1ima / (OneZeroFirst00ibmq1ima + ZeroZeroFirst00ibmq1ima)},
  {0.2, ZeroZeroFirst02ibmq1ima / (OneZeroFirst02ibmq1ima + ZeroZeroFirst02ibmq1ima)},
  {0.4, ZeroZeroFirst04ibmq1ima / (OneZeroFirst04ibmq1ima + ZeroZeroFirst04ibmq1ima)},
  {0.6, ZeroZeroFirst06ibmq1ima / (OneZeroFirst06ibmq1ima + ZeroZeroFirst06ibmq1ima)},
  {0.8, ZeroZeroFirst08ibmq1ima / (OneZeroFirst08ibmq1ima + ZeroZeroFirst08ibmq1ima)},
  {1, ZeroZeroFirst10ibmq1ima / (OneZeroFirst10ibmq1ima + ZeroZeroFirst10ibmq1ima)} }
Decisivenessibmq1ima = { {-1, (OneZeroSecond10ibmq1ima + ZeroZeroSecond10ibmq1ima) / 8192},
  {-0.8, (OneZeroSecond08ibmq1ima + ZeroZeroSecond08ibmq1ima) / 8192},
  {-0.6, (OneZeroSecond06ibmq1ima + ZeroZeroSecond06ibmq1ima) / 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[]= 526

Out[]= 2882

Out[]= 3414

Out[]= 1370

Out[]= 577

Out[]= 3293

Out[]= 2885

Out[]= 1437

Out[]= 648

Out[]= 3640

Out[]= 2579

Out[]= 1325

Out[]= 634

Out[]= 4088

Out[]= 2036

Out[]= 1434

Out[]= 739

Out[]= 4451

Out[]= 1551

Out[]= 1451

Out[]= 980

Out[]= 4737

Out[]= 1201

Out[]= 1274

$$\text{Out}[*]= 895$$

$$\text{Out}[*]= 5185$$

$$\text{Out}[*]= 870$$

$$\text{Out}[*]= 1242$$

$$\text{Out}[*]= 1093$$

$$\text{Out}[*]= 5160$$

$$\text{Out}[*]= 636$$

$$\text{Out}[*]= 1303$$

$$\text{Out}[*]= 1466$$

$$\text{Out}[*]= 5147$$

$$\text{Out}[*]= 440$$

$$\text{Out}[*]= 1139$$

$$\text{Out}[*]= 1368$$

$$\text{Out}[*]= 5410$$

$$\text{Out}[*]= 315$$

$$\text{Out}[*]= 1099$$

$$\text{Out}[*]= 1765$$

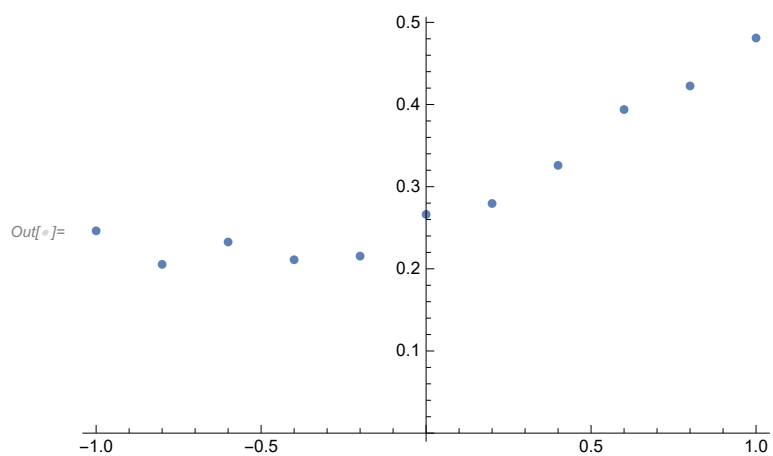
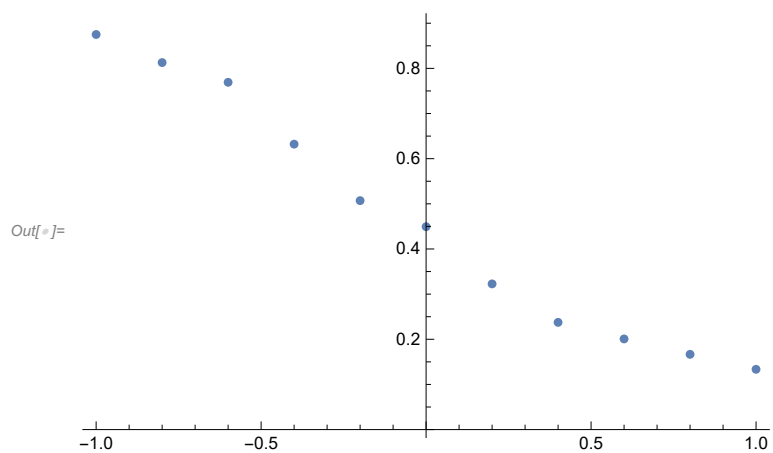
$$\text{Out}[*]= 5218$$

$$\text{Out}[*]= 252$$

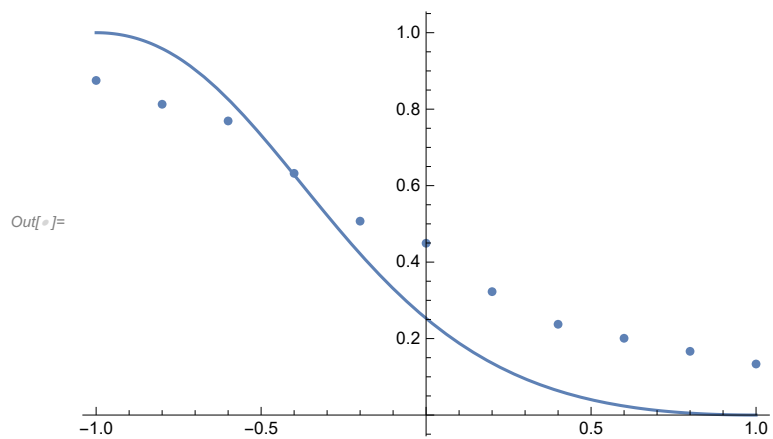
$$\text{Out}[*]= 957$$

$$\text{Out}[*]= \left\{ \left\{ -1, \frac{1765}{2017} \right\}, \left\{ -0.8, \frac{152}{187} \right\}, \left\{ -0.6, \frac{733}{953} \right\}, \left\{ -0.4, \frac{1093}{1729} \right\}, \left\{ -0.2, \frac{179}{353} \right\}, \right. \\ \left. \left\{ 0., \frac{980}{2181} \right\}, \left\{ 0.2, \frac{739}{2290} \right\}, \left\{ 0.4, \frac{317}{1335} \right\}, \left\{ 0.6, \frac{648}{3227} \right\}, \left\{ 0.8, \frac{1}{6} \right\}, \left\{ 1, \frac{263}{1970} \right\} \right\}$$

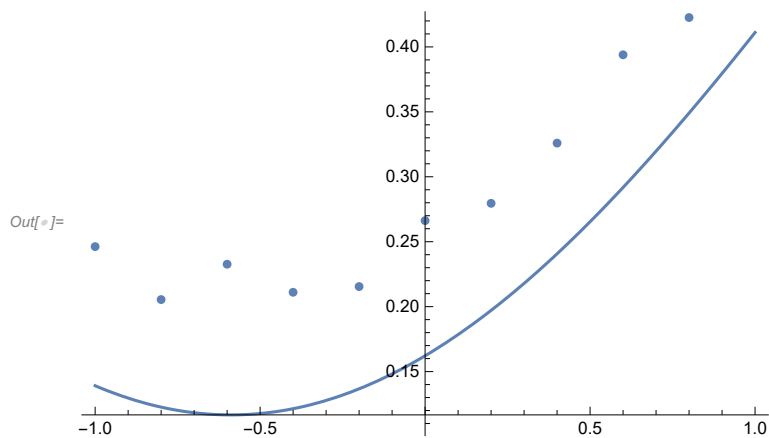
$$\text{Out}[*]= \left\{ \left\{ -1, \frac{2017}{8192} \right\}, \left\{ -0.8, \frac{1683}{8192} \right\}, \left\{ -0.6, \frac{953}{4096} \right\}, \left\{ -0.4, \frac{1729}{8192} \right\}, \left\{ -0.2, \frac{1765}{8192} \right\}, \right. \\ \left. \left\{ 0., \frac{2181}{8192} \right\}, \left\{ 0.2, \frac{1145}{4096} \right\}, \left\{ 0.4, \frac{1335}{4096} \right\}, \left\{ 0.6, \frac{3227}{8192} \right\}, \left\{ 0.8, \frac{1731}{4096} \right\}, \left\{ 1., \frac{985}{2048} \right\} \right\}$$



In[]:= Show[cosTH, ExpCosSqibmqlima]



In[]:= Show[decTH, ExpDecisivenessibmqIima]



In[]:= (*ibmq_qasm_simulator*)

```
ZeroZeroFirst10ibmqqasmsimulator = 0
ZeroOneFirst10ibmqqasmsimulator = 3236
OneZeroFirst10ibmqqasmsimulator = 3374
OneOneFirst10ibmqqasmsimulator = 1582
```

```
ZeroZeroFirst08ibmqqasmsimulator = 15
ZeroOneFirst08ibmqqasmsimulator = 3765
OneZeroFirst08ibmqqasmsimulator = 2829
OneOneFirst08ibmqqasmsimulator = 1583
```

```
ZeroZeroFirst06ibmqqasmsimulator = 51
ZeroOneFirst06ibmqqasmsimulator = 4275
OneZeroFirst06ibmqqasmsimulator = 2190
OneOneFirst06ibmqqasmsimulator = 1676
```

```
ZeroZeroFirst04ibmqqasmsimulator = 169
ZeroOneFirst04ibmqqasmsimulator = 4520
OneZeroFirst04ibmqqasmsimulator = 1884
OneOneFirst04ibmqqasmsimulator = 1619
```

```
ZeroZeroFirst02ibmqqasmsimulator = 212
ZeroOneFirst02ibmqqasmsimulator = 4963
OneZeroFirst02ibmqqasmsimulator = 1456
OneOneFirst02ibmqqasmsimulator = 1561
```

```
ZeroZeroFirst00ibmqqasmsimulator = 325
ZeroOneFirst00ibmqqasmsimulator = 5293
OneZeroFirst00ibmqqasmsimulator = 1013
OneOneFirst00ibmqqasmsimulator = 1561
```

```
ZeroZeroSecond02ibmqqasmsimulator = 487
ZeroOneSecond02ibmqqasmsimulator = 5588
OneZeroSecond02ibmqqasmsimulator = 602
OneOneSecond02ibmqqasmsimulator = 1515
```

```

ZeroZeroSecond04ibmqqasmsimulator = 621
ZeroOneSecond04ibmqqasmsimulator = 5823
OneZeroSecond04ibmqqasmsimulator = 380
OneOneSecond04ibmqqasmsimulator = 1368

```

```

ZeroZeroSecond06ibmqqasmsimulator = 825
ZeroOneSecond06ibmqqasmsimulator = 5832
OneZeroSecond06ibmqqasmsimulator = 170
OneOneSecond06ibmqqasmsimulator = 1365

```

```

ZeroZeroSecond08ibmqqasmsimulator = 973
ZeroOneSecond08ibmqqasmsimulator = 5981
OneZeroSecond08ibmqqasmsimulator = 37
OneOneSecond08ibmqqasmsimulator = 1201

```

```

ZeroZeroSecond10ibmqqasmsimulator = 1163
ZeroOneSecond10ibmqqasmsimulator = 5946
OneZeroSecond10ibmqqasmsimulator = 0
OneOneSecond10ibmqqasmsimulator = 1083

```

```

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[]= 3236

Out[]= 3374

Out[]= 1582

Out[]= 15

Out[]= 3765

Out[]= 2829

Out[]= 1583

Out[]= 51

Out[]= 4275

Out[]= 2190

Out[]= 1676

Out[]= 169

Out[]= 4520

Out[]= 1884

Out[]= 1619

Out[]= 212

Out[]= 4963

Out[]= 1456

Out[]= 1561

Out[]= 325

Out[]= 5293

Out[]= 1013

Out[]= 1561

Out[]= 487

Out[]= 5588

Out[]= 602

Out[]= 1515

Out[]= 621

Out[]= 5823

Out[]= 380

Out[]= 1368

Out[]= 825

Out[]= 5832

Out[]= 170

Out[]= 1365

Out[]= 973

Out[]= 5981

Out[]= 37

Out[]= 1201

Out[]= 1163

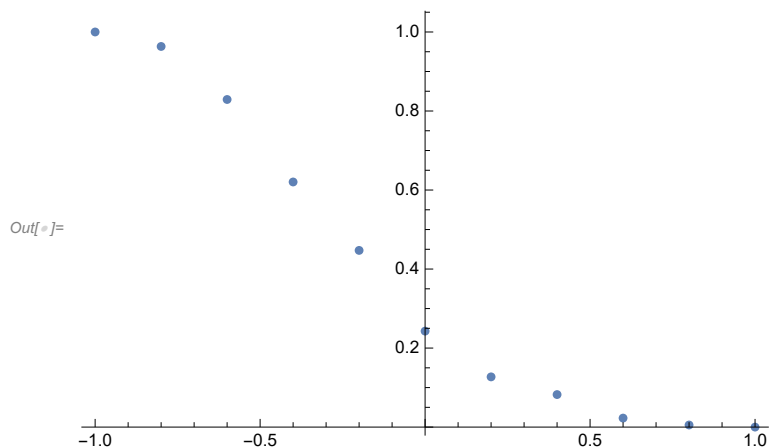
Out[]= 5946

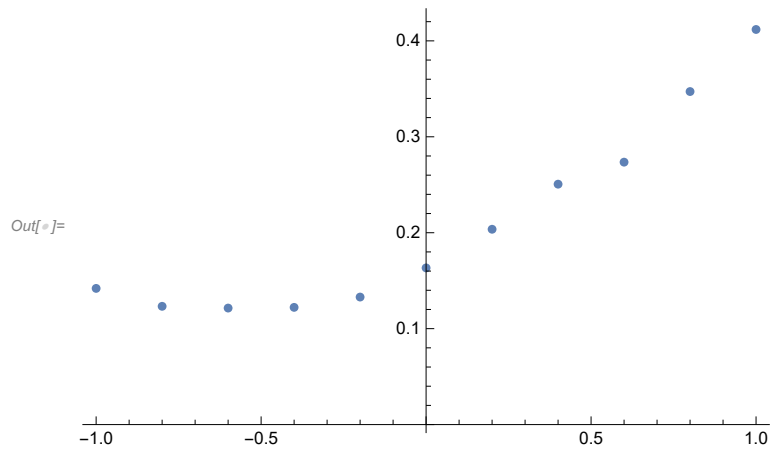
Out[]= 0

Out[]= 1083

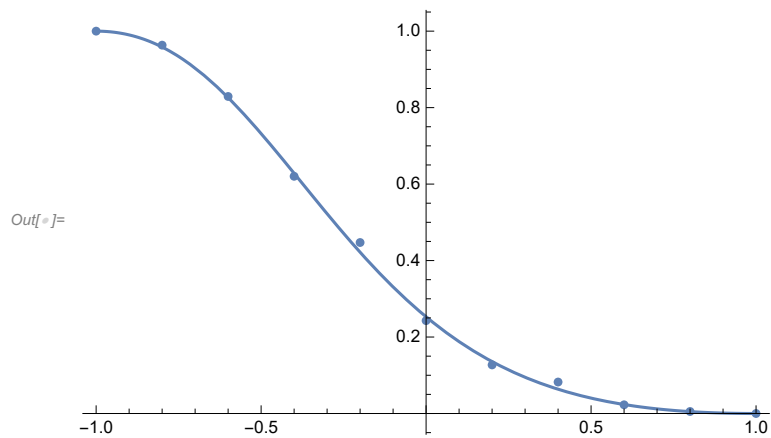
Out[]= $\left\{ \left\{ -1, 1 \right\}, \left\{ -0.8, \frac{973}{1010} \right\}, \left\{ -0.6, \frac{165}{199} \right\}, \left\{ -0.4, \frac{621}{1001} \right\}, \left\{ -0.2, \frac{487}{1089} \right\}, \right.$
 $\left. \left\{ 0., \frac{325}{1338} \right\}, \left\{ 0.2, \frac{53}{417} \right\}, \left\{ 0.4, \frac{169}{2053} \right\}, \left\{ 0.6, \frac{17}{747} \right\}, \left\{ 0.8, \frac{5}{948} \right\}, \left\{ 1, 0 \right\} \right\}$

Out[]= $\left\{ \left\{ -1, \frac{1163}{8192} \right\}, \left\{ -0.8, \frac{505}{4096} \right\}, \left\{ -0.6, \frac{995}{8192} \right\}, \left\{ -0.4, \frac{1001}{8192} \right\}, \left\{ -0.2, \frac{1089}{8192} \right\}, \right.$
 $\left. \left\{ 0., \frac{669}{4096} \right\}, \left\{ 0.2, \frac{417}{2048} \right\}, \left\{ 0.4, \frac{2053}{8192} \right\}, \left\{ 0.6, \frac{2241}{8192} \right\}, \left\{ 0.8, \frac{711}{2048} \right\}, \left\{ 1., \frac{1687}{4096} \right\} \right\}$

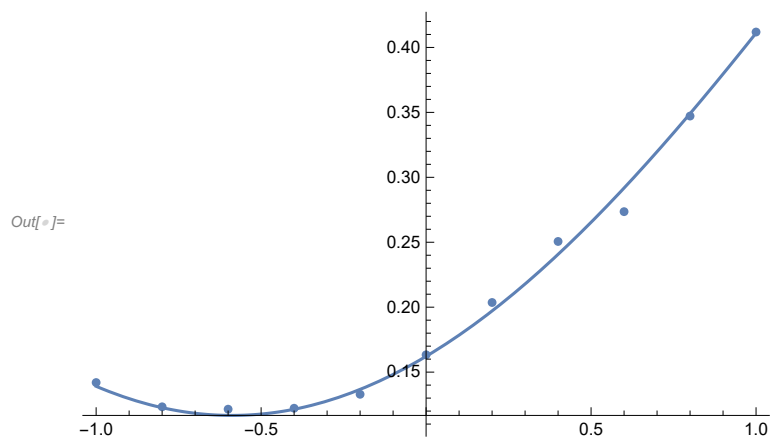




In[]:= **Show[cosTH, ExpCosSqibmqqasmsimulator]**



In[]:= **Show[decTH, ExpDecisivenessibmqqasmsimulator]**



In[]:= **(*ibmq_belem*)**

ZeroZeroFirst10ibmqbelem = 499

ZeroOneFirst10ibmqbelem = 2925

OneZeroFirst10ibmqbelem = 3244

OneOneFirst10ibmqbelem = 1524

ZeroZeroFirst08ibmqbelem = 489

ZeroOneFirst08ibmqbelem = 3192
 OneZeroFirst08ibmqbelem = 2910
 OneOneFirst08ibmqbelem = 1601

ZeroZeroFirst06ibmqbelem = 490
 ZeroOneFirst06ibmqbelem = 3638
 OneZeroFirst06ibmqbelem = 2525
 OneOneFirst06ibmqbelem = 1539

ZeroZeroFirst04ibmqbelem = 564
 ZeroOneFirst04ibmqbelem = 4085
 OneZeroFirst04ibmqbelem = 2052
 OneOneFirst04ibmqbelem = 1491

ZeroZeroFirst02ibmqbelem = 604
 ZeroOneFirst02ibmqbelem = 4389
 OneZeroFirst02ibmqbelem = 1699
 OneOneFirst02ibmqbelem = 1500

ZeroZeroFirst00ibmqbelem = 780
 ZeroOneFirst00ibmqbelem = 4476
 OneZeroFirst00ibmqbelem = 1389
 OneOneFirst00ibmqbelem = 1547

ZeroZeroSecond02ibmqbelem = 993
 ZeroOneSecond02ibmqbelem = 4573
 OneZeroSecond02ibmqbelem = 1183
 OneOneSecond02ibmqbelem = 1443

ZeroZeroSecond04ibmqbelem = 1106
 ZeroOneSecond04ibmqbelem = 4839
 OneZeroSecond04ibmqbelem = 850
 OneOneSecond04ibmqbelem = 1397

ZeroZeroSecond06ibmqbelem = 1211
 ZeroOneSecond06ibmqbelem = 4935
 OneZeroSecond06ibmqbelem = 724
 OneOneSecond06ibmqbelem = 1322

ZeroZeroSecond08ibmqbelem = 1387
 ZeroOneSecond08ibmqbelem = 5064
 OneZeroSecond08ibmqbelem = 539
 OneOneSecond08ibmqbelem = 1202

ZeroZeroSecond10ibmqbelem = 1555
 ZeroOneSecond10ibmqbelem = 5100
 OneZeroSecond10ibmqbelem = 466
 OneOneSecond10ibmqbelem = 1071

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

```

{-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[]= 499

Out[]= 2925

Out[]= 3244

Out[]= 1524

Out[]= 489

Out[]= 3192

Out[]= 2910

Out[]= 1601

Out[]= 490

Out[]= 3638

Out[]= 2525

Out[]= 1539

Out[]= 564

Out[]= 4085

Out[]= 2052

Out[]= 1491

Out[]= 604

Out[]= 4389

Out[]= 1699

Out[]= 1500

Out[]= 780

Out[]= 4476

Out[]= 1389

Out[]= 1547

Out[]= 993

Out[]= 4573

Out[]= 1183

Out[]= 1443

Out[]= 1106

Out[]= 4839

Out[]= 850

Out[]= 1397

Out[]= 1211

Out[]= 4935

Out[]= 724

Out[]= 1322

Out[]= 1387

Out[]= 5064

Out[]= 539

Out[]= 1202

Out[]= 1555

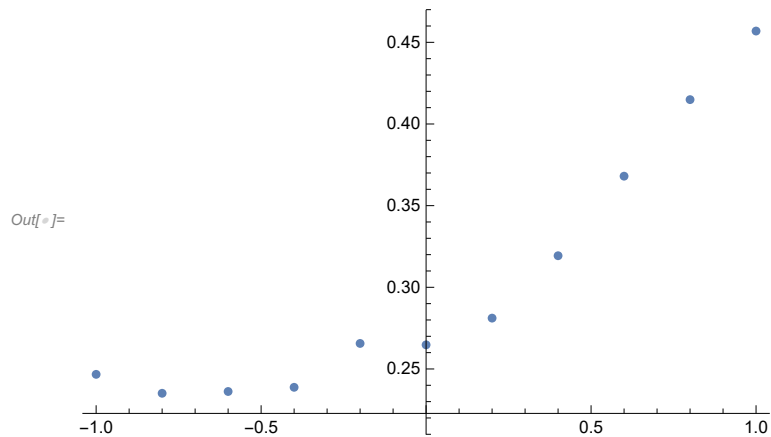
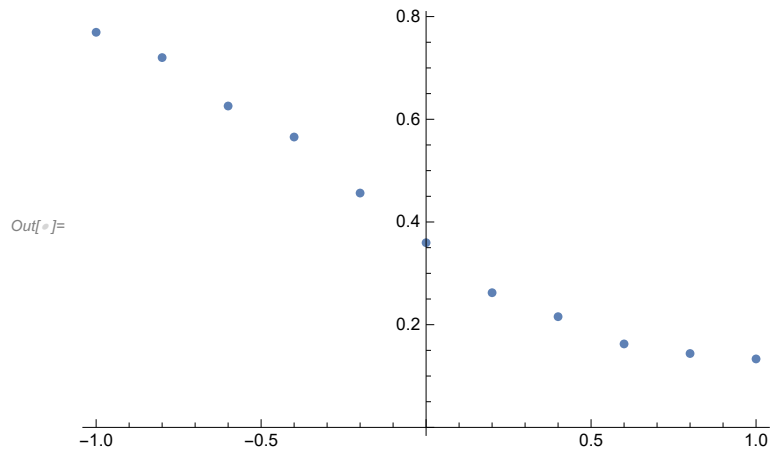
Out[]= 5100

Out[]= 466

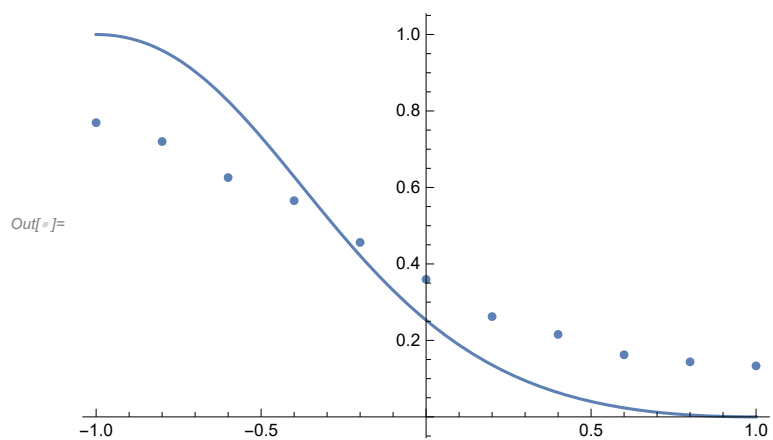
Out[]= 1071

$$\text{Out}[*]= \left\{ \left\{ -1, \frac{1555}{2021} \right\}, \left\{ -0.8, \frac{1387}{1926} \right\}, \left\{ -0.6, \frac{1211}{1935} \right\}, \left\{ -0.4, \frac{553}{978} \right\}, \left\{ -0.2, \frac{993}{2176} \right\}, \right. \\ \left. \left\{ 0., \frac{260}{723} \right\}, \left\{ 0.2, \frac{604}{2303} \right\}, \left\{ 0.4, \frac{47}{218} \right\}, \left\{ 0.6, \frac{98}{603} \right\}, \left\{ 0.8, \frac{163}{1133} \right\}, \left\{ 1, \frac{499}{3743} \right\} \right\}$$

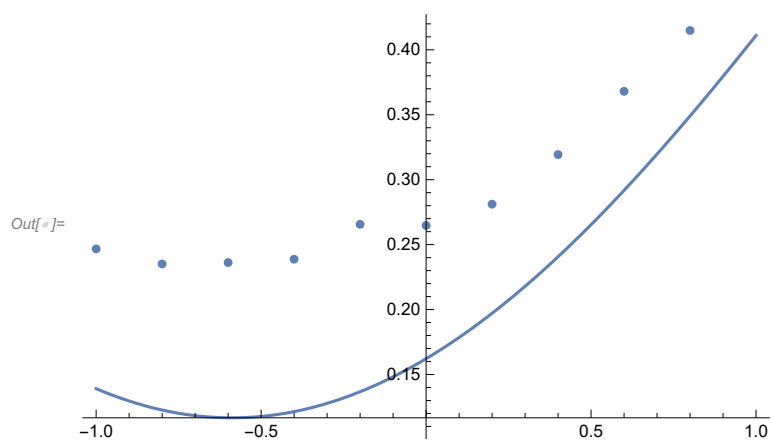
$$\text{Out}[*]= \left\{ \left\{ -1, \frac{2021}{8192} \right\}, \left\{ -0.8, \frac{963}{4096} \right\}, \left\{ -0.6, \frac{1935}{8192} \right\}, \left\{ -0.4, \frac{489}{2048} \right\}, \left\{ -0.2, \frac{17}{64} \right\}, \right. \\ \left. \left\{ 0., \frac{2169}{8192} \right\}, \left\{ 0.2, \frac{2303}{8192} \right\}, \left\{ 0.4, \frac{327}{1024} \right\}, \left\{ 0.6, \frac{3015}{8192} \right\}, \left\{ 0.8, \frac{3399}{8192} \right\}, \left\{ 1., \frac{3743}{8192} \right\} \right\}$$



In[]:= Show[cosTH, ExpCosSqibmqbelem]



In[]:= Show[decTH, ExpDecisivenessibmqbelem]



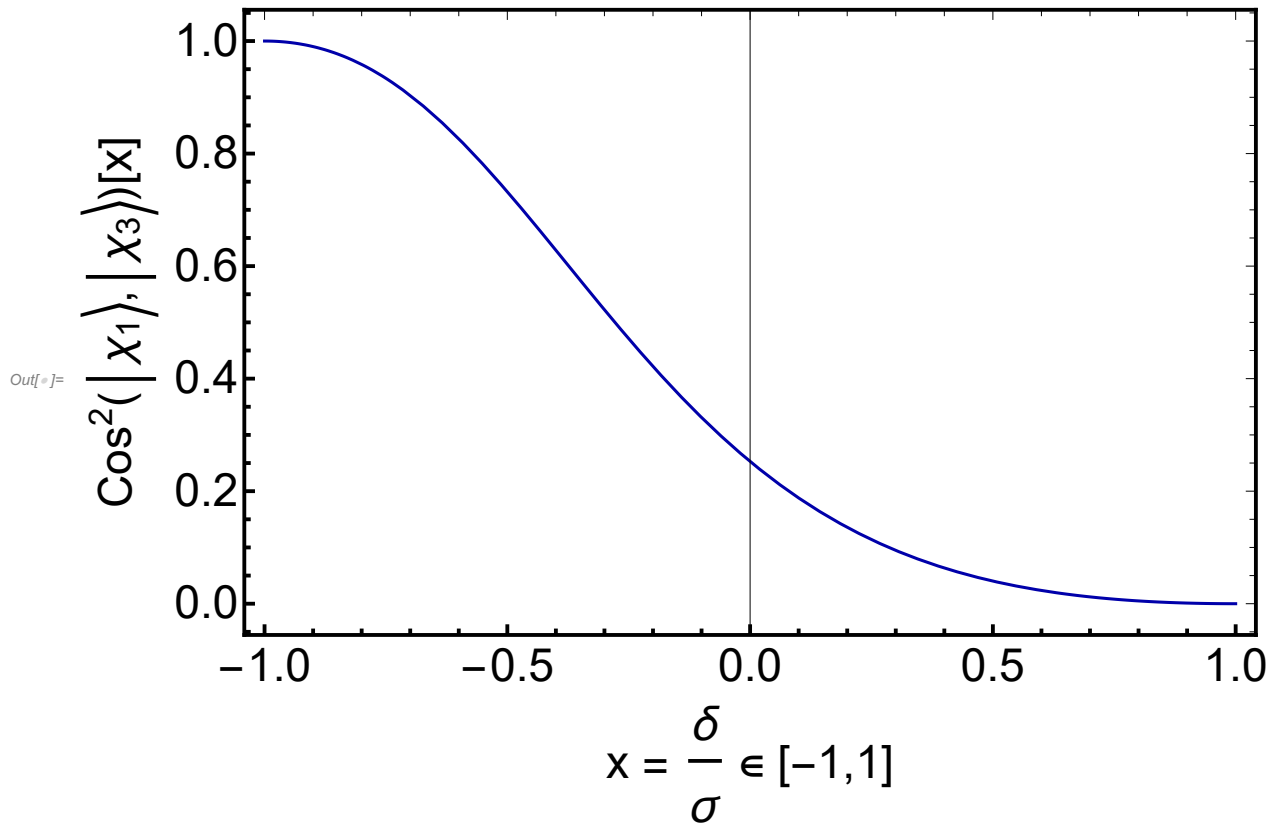
In[]:=

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

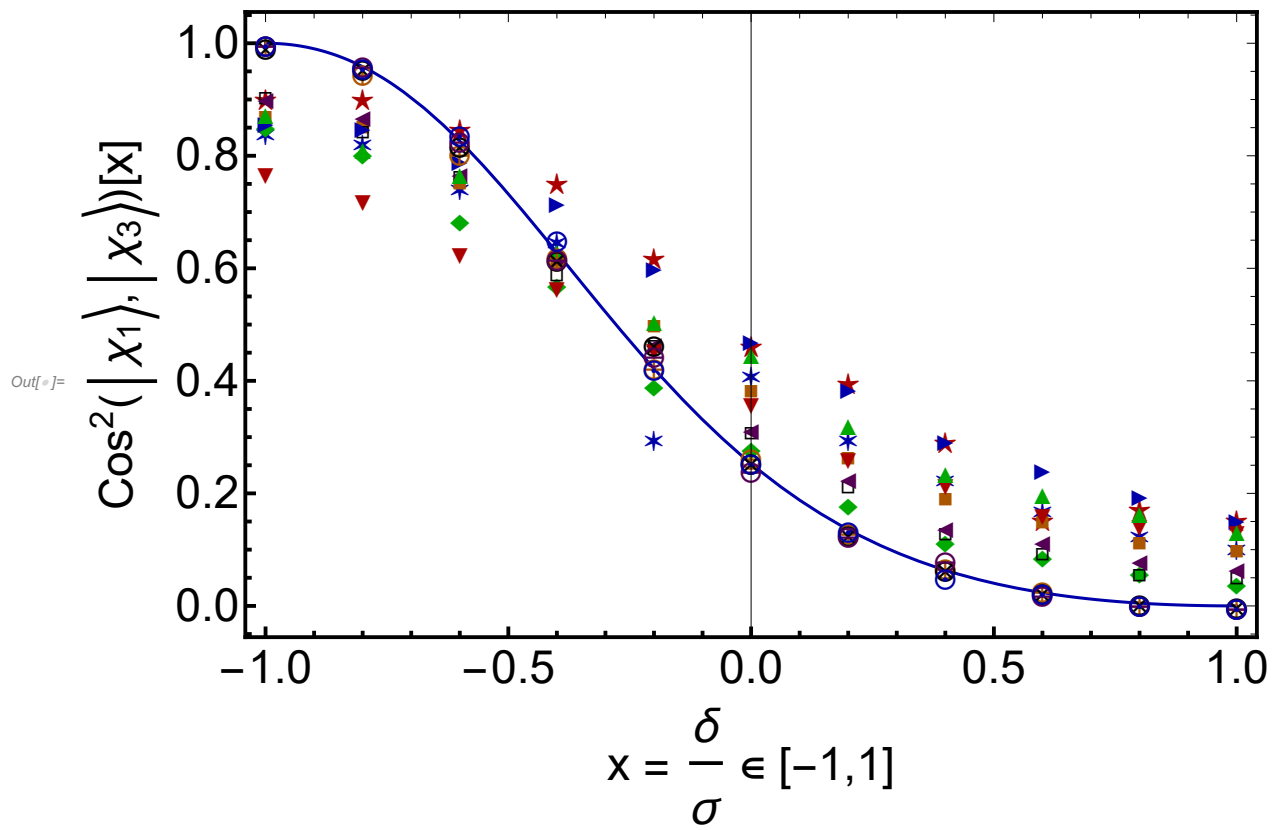

```

In[ ]:= CosSqTheory = Plot[1 - N[cosFirstFunction[-x * σ, 4 / 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]
```

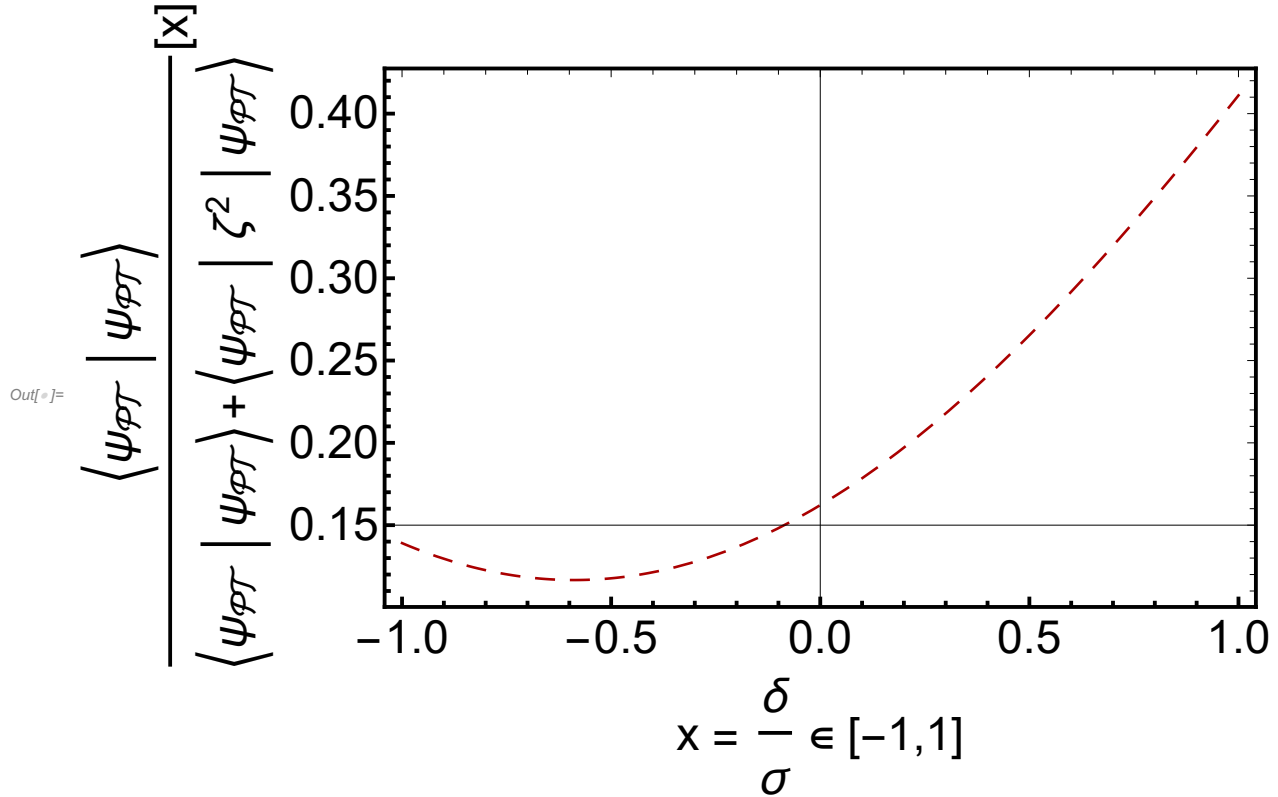


```

In[ ]:= DecisivenessTheory = Plot[DecisivenessFirstFunction[-x * σ, 4 / 5, π / 2 - 1, 3], {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 → {{
    
$$\frac{\langle \psi_{PT} | \psi_{PT} \rangle}{\langle \psi_{PT} | \psi_{PT} \rangle + \langle \psi_{PT} | \xi^2 | \psi_{PT} \rangle} [x]$$

}, {"x =  $\frac{\delta}{\sigma} \in [-1, 1]$ ", ""}},
  LabelStyle → {FontWeight → "Bold", FontSize → 25},
  ImageSize → 650, GridLinesStyle → Directive[Thick, Gray]]

```



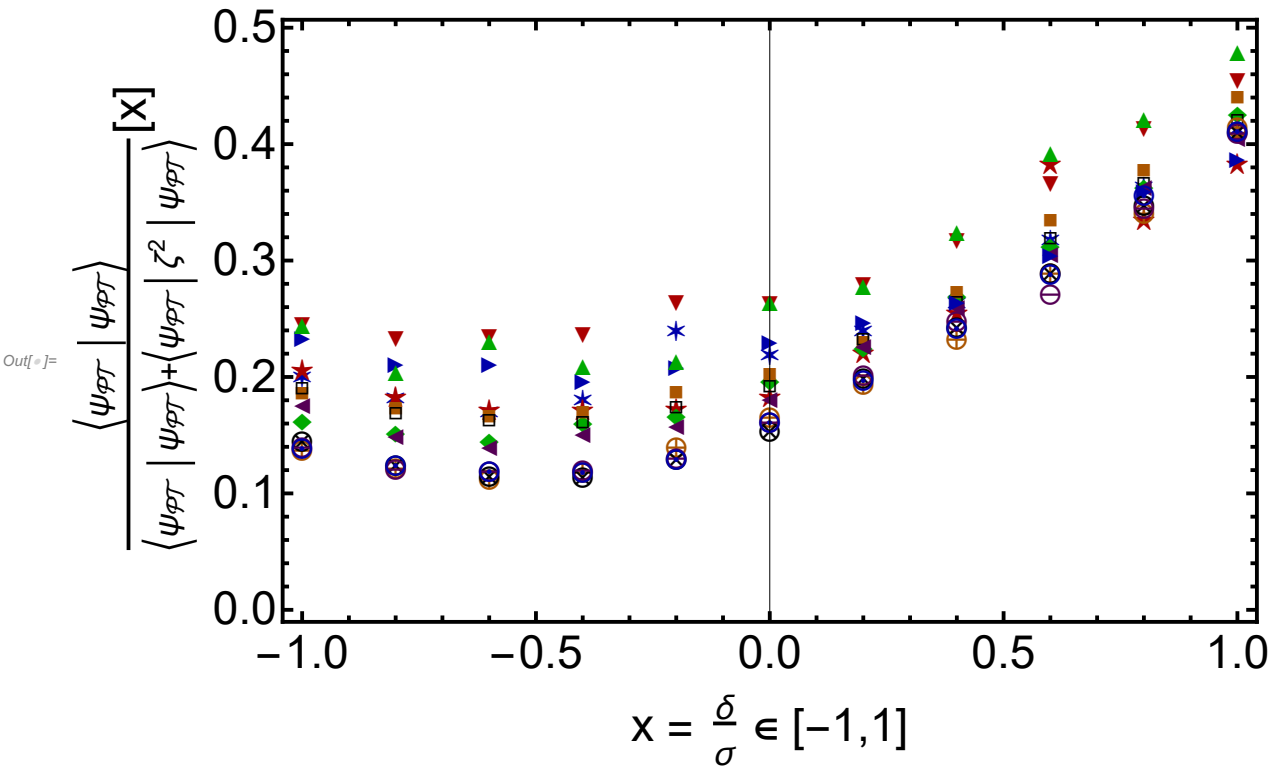
```

In[4]:= DecisivenessExperiment =
ListPlot[{Decisivenessibmperth, Decisivenessibmqjakarta, Decisivenessibmlagos,
Decisivenessibmnairobi, Decisivenessibmoslo, Decisivenessibmqmanila,
Decisivenessibmqquito, Decisivenessibmqbelem, Decisivenessibmqlima,
Decisivenesssimulatormps, Decisivenesssimulatorextendedstabilizer,
Decisivenessibmqqasmsimulator, Decisivenesssimulatorstatevector},
PlotStyle → {Directive[Darker[Blue], Thickness[0.007]],
Directive[Darker[Red], Dashing[0.02], Thickness[0.007]],
Directive[Darker[Green], Thickness[0.005], Dotted], Directive[Darker[Orange],
Thickness[0.007], Dashed], Directive[Darker[Black], Thickness[0.003]],
Directive[Cross, Darker[Purple], Thickness[0.003]]}, Frame → True,
FrameStyle → Directive[Black, Thick], PlotLegends → LineLegend[{"ibm_perth",
"ibmq_jakarta", "ibm_lagos", "ibm_nairobi", "ibm_oslo", "ibmq_manila", "ibmq_quito",
"ibmq_belem", "ibmq_lima", "simulator_mps", "simulator_extended_stabilizer",
"ibmq_qasm_simulator", "simulator_statevector"}, LegendFunction → Framed],
Frame → True, FrameStyle → Directive[Black, Thick], LabelStyle → Large,
PlotStyle → {Directive[Darker[Green], Thickness[0.007]]},

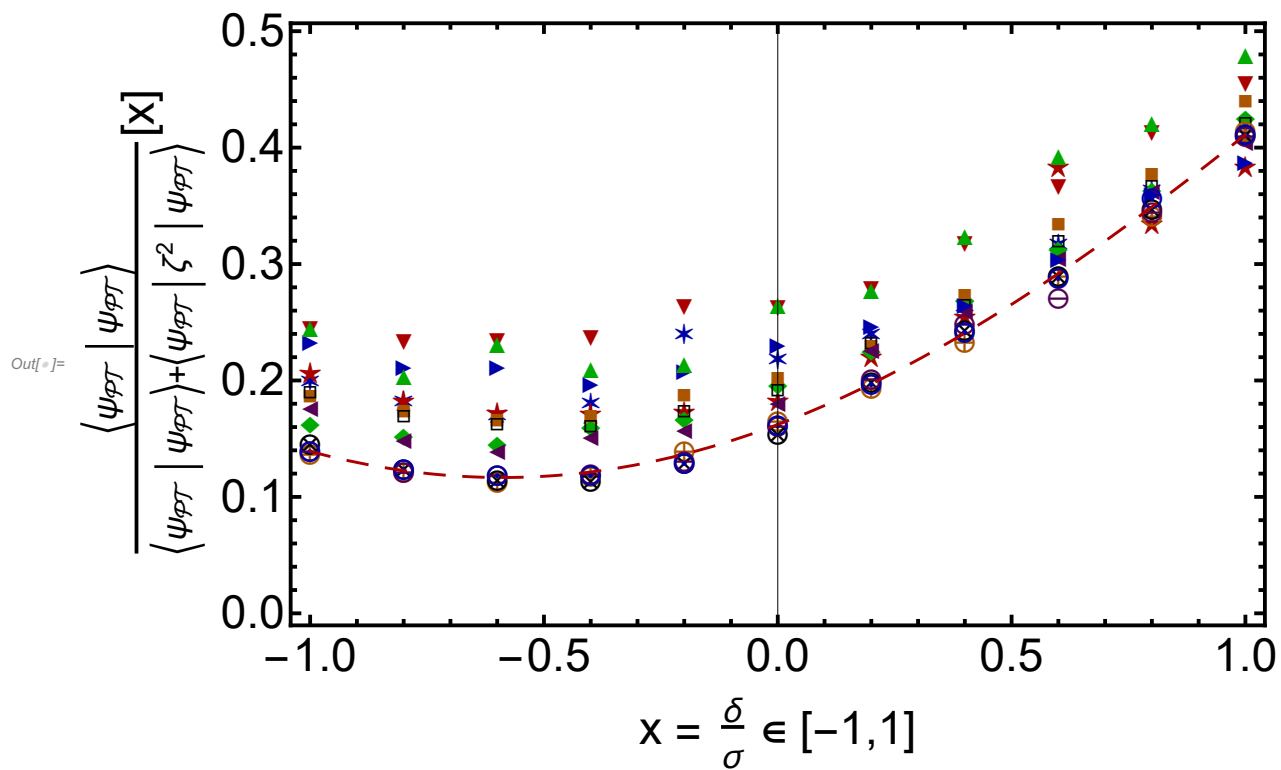
FrameLabel → {{
$$\frac{\langle \psi_{\mathcal{PT}} | \psi_{\mathcal{PT}} \rangle}{\langle \psi_{\mathcal{PT}} | \psi_{\mathcal{PT}} \rangle + \langle \psi_{\mathcal{PT}} | \xi^2 | \psi_{\mathcal{PT}} \rangle} [x] "$$
}, {"x =  $\frac{\delta}{\sigma} \in [-1, 1]$ "}, {""}},

LabelStyle → {FontWeight → "Bold", FontSize → 25},
ImageSize → 650, GridLinesStyle → Directive[Thick, Gray],
PlotMarkers -> {{{"*", 15}, {"*", 15}, {"♦", 15}, {"■", 15}, {"□", 15}, {"◀", 15},
{"▶", 15}, {"▼", 15}, {"▲", 15}, {"⊕", 15}, {"⊗", 15}, {"⊖", 15}, {"⊙", 15}}}

```



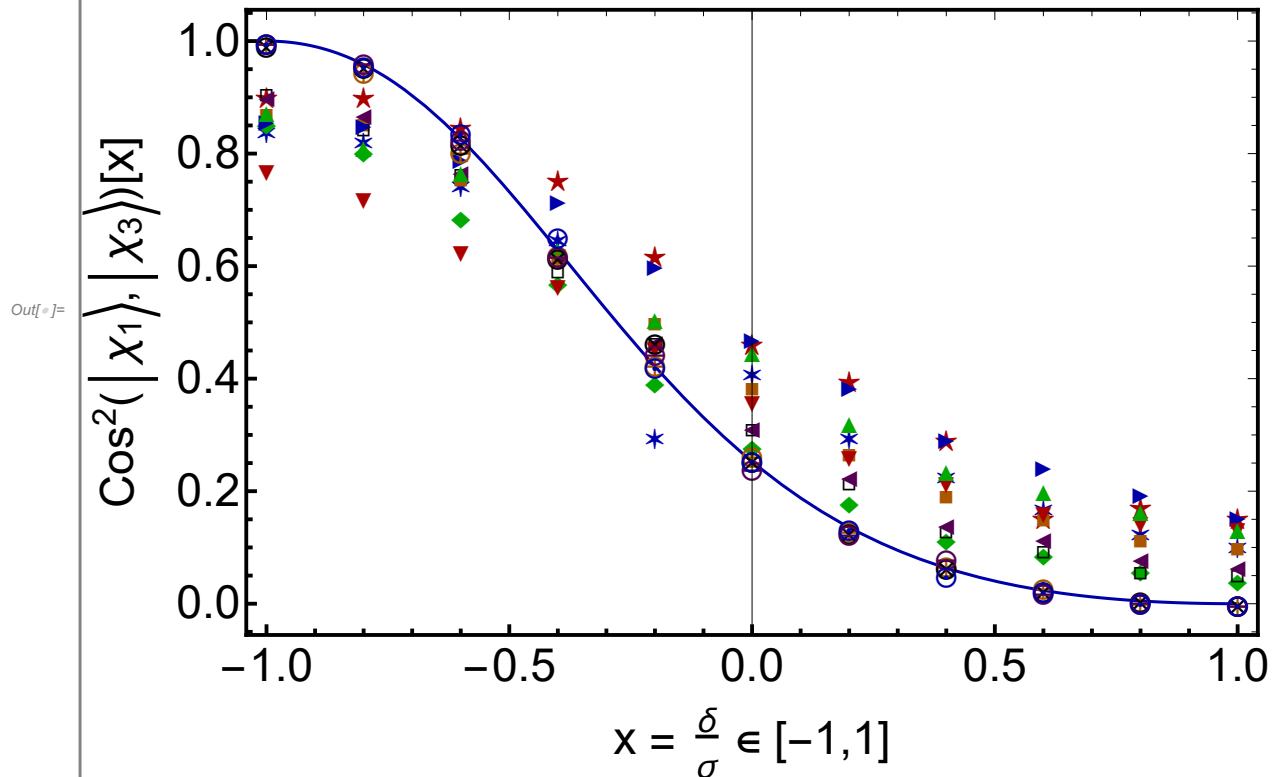
```
In[ ]:= p2 = Show[DecisivenessExperiment, DecisivenessTheory]
```



```

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["First450ne_8_9_2023.png", DependenceVariation, ImageSize → 10 000 ]

```

Out[]:= First450ne_8_9_2023.png

```

In[ ]:= (*ibm_perth*)
ZeroZeroSecond10ibmperth = 1374
ZeroOneSecond10ibmperth = 5202
OneZeroSecond10ibmperth = 266
OneOneSecond10ibmperth = 1350

ZeroZeroSecond08ibmperth = 1228
ZeroOneSecond08ibmperth = 5365
OneZeroSecond08ibmperth = 269
OneOneSecond08ibmperth = 1330

```

ZeroZeroSecond06ibmperth = 1036
 ZeroOneSecond06ibmperth = 5286
 OneZeroSecond06ibmperth = 362
 OneOneSecond06ibmperth = 1508

ZeroZeroSecond04ibmperth = 958
 ZeroOneSecond04ibmperth = 5084
 OneZeroSecond04ibmperth = 525
 OneOneSecond04ibmperth = 1625

ZeroZeroFirst02ibmperth = 890
 ZeroOneFirst02ibmperth = 4906
 OneZeroFirst02ibmperth = 744
 OneOneFirst02ibmperth = 1652

ZeroZeroFirst00ibmperth = 734
 ZeroOneFirst00ibmperth = 4679
 OneZeroFirst00ibmperth = 1063
 OneOneFirst00ibmperth = 1716

ZeroZeroFirst02ibmperth = 579
 ZeroOneFirst02ibmperth = 4545
 OneZeroFirst02ibmperth = 1390
 OneOneFirst02ibmperth = 1678

ZeroZeroFirst04ibmperth = 485
 ZeroOneFirst04ibmperth = 4209
 OneZeroFirst04ibmperth = 1680
 OneOneFirst04ibmperth = 1818

ZeroZeroFirst06ibmperth = 437
 ZeroOneFirst06ibmperth = 3785
 OneZeroFirst06ibmperth = 2167
 OneOneFirst06ibmperth = 1803

ZeroZeroFirst08ibmperth = 370
 ZeroOneFirst08ibmperth = 3437
 OneZeroFirst08ibmperth = 2611
 OneOneFirst08ibmperth = 1774

ZeroZeroFirst10ibmperth = 338
 ZeroOneFirst10ibmperth = 3032
 OneZeroFirst10ibmperth = 3040
 OneOneFirst10ibmperth = 1782

CosSqibmperth =
 $\{ \{-1, \text{ZeroZeroSecond10ibmperth} / (\text{OneZeroSecond10ibmperth} + \text{ZeroZeroSecond10ibmperth})\},$
 $\{-0.8, \text{ZeroZeroSecond08ibmperth} / (\text{OneZeroSecond08ibmperth} + \text{ZeroZeroSecond08ibmperth})\},$
 $\{-0.6, \text{ZeroZeroSecond06ibmperth} / (\text{OneZeroSecond06ibmperth} + \text{ZeroZeroSecond06ibmperth})\},$
 $\{-0.4, \text{ZeroZeroSecond04ibmperth} / (\text{OneZeroSecond04ibmperth} + \text{ZeroZeroSecond04ibmperth})\},$
 $\{-0.2, \text{ZeroZeroSecond02ibmperth} / (\text{OneZeroSecond02ibmperth} + \text{ZeroZeroSecond02ibmperth})\},$


```

{0.0, ZeroZeroFirst00ibmperth / (OneZeroFirst00ibmperth + ZeroZeroFirst00ibmperth)},
{0.2, ZeroZeroFirst02ibmperth / (OneZeroFirst02ibmperth + ZeroZeroFirst02ibmperth)},
{0.4, ZeroZeroFirst04ibmperth / (OneZeroFirst04ibmperth + ZeroZeroFirst04ibmperth)},
{0.6, ZeroZeroFirst06ibmperth / (OneZeroFirst06ibmperth + ZeroZeroFirst06ibmperth)},
{0.8, ZeroZeroFirst08ibmperth / (OneZeroFirst08ibmperth + ZeroZeroFirst08ibmperth)},
{1, ZeroZeroFirst10ibmperth / (OneZeroFirst10ibmperth + ZeroZeroFirst10ibmperth)}}
Decisivenessibmperth = {{-1, (OneZeroSecond10ibmperth + ZeroZeroSecond10ibmperth) / 8192},
{-0.8, (OneZeroSecond08ibmperth + ZeroZeroSecond08ibmperth) / 8192},
{-0.6, (OneZeroSecond06ibmperth + ZeroZeroSecond06ibmperth) / 8192},
{-0.4, (OneZeroSecond04ibmperth + ZeroZeroSecond04ibmperth) / 8192},
{-0.2, (OneZeroSecond02ibmperth + ZeroZeroSecond02ibmperth) / 8192},
{-0.0, (OneZeroFirst00ibmperth + ZeroZeroFirst00ibmperth) / 8192},
{0.2, (OneZeroFirst02ibmperth + ZeroZeroFirst02ibmperth) / 8192},
{0.4, (OneZeroFirst04ibmperth + ZeroZeroFirst04ibmperth) / 8192},
{0.6, (OneZeroFirst06ibmperth + ZeroZeroFirst06ibmperth) / 8192},
{0.8, (OneZeroFirst08ibmperth + ZeroZeroFirst08ibmperth) / 8192},
{1.0, (OneZeroFirst10ibmperth + ZeroZeroFirst10ibmperth) / 8192}}
ExpCosSqibmperth = ListPlot[CosSqibmperth]
ExpDecisivenessibmperth = ListPlot[Decisivenessibmperth]
Show[cosTH, ExpCosSqibmperth]
Show[decTH, ExpDecisivenessibmperth]

```

Out[]= 1374

Out[]= 5202

Out[]= 266

Out[]= 1350

Out[]= 1228

Out[]= 5365

Out[]= 269

Out[]= 1330

Out[]= 1036

Out[]= 5286

Out[]= 362

Out[]= 1508

Out[]= 958

Out[]= 5084

Out[]= 525

Out[]= 1625

Out[]= 890

$Out[\#] = 4906$

$Out[\#] = 744$

$Out[\#] = 1652$

$Out[\#] = 734$

$Out[\#] = 4679$

$Out[\#] = 1063$

$Out[\#] = 1716$

$Out[\#] = 579$

$Out[\#] = 4545$

$Out[\#] = 1390$

$Out[\#] = 1678$

$Out[\#] = 485$

$Out[\#] = 4209$

$Out[\#] = 1680$

$Out[\#] = 1818$

$Out[\#] = 437$

$Out[\#] = 3785$

$Out[\#] = 2167$

$Out[\#] = 1803$

$Out[\#] = 370$

$Out[\#] = 3437$

$Out[\#] = 2611$

$Out[\#] = 1774$

$Out[\#] = 338$

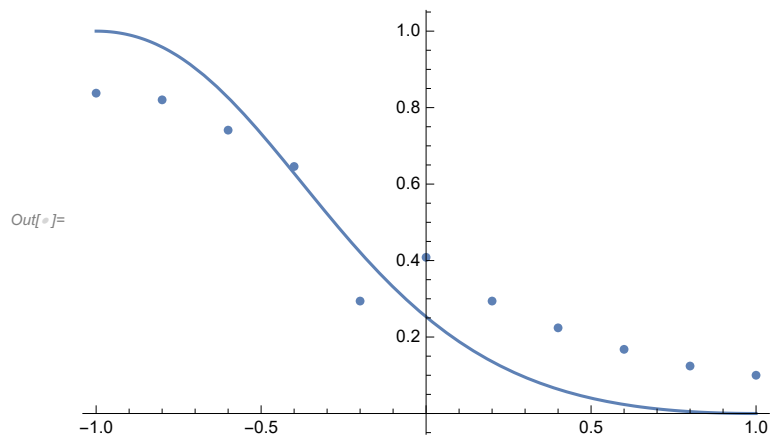
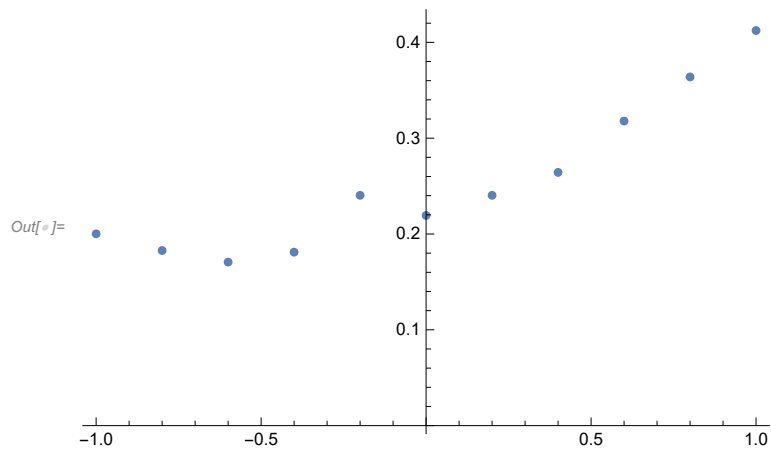
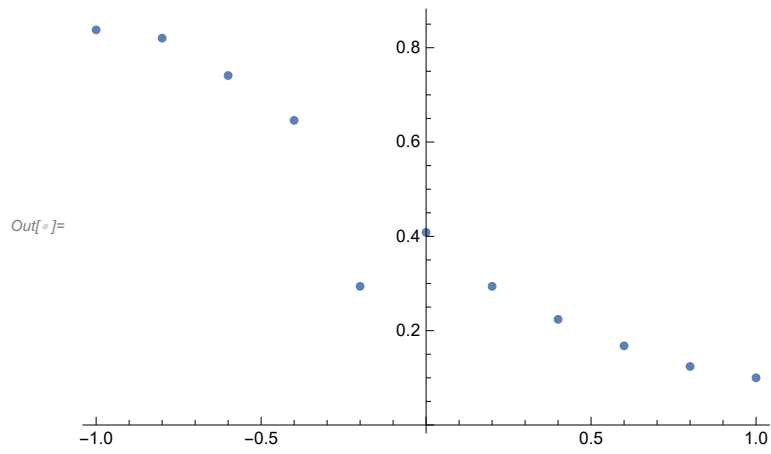
$Out[\#] = 3032$

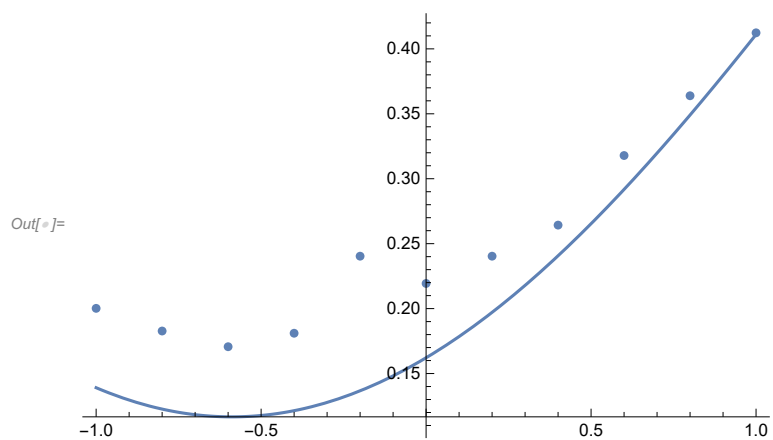
$Out[\#] = 3040$

$Out[\#] = 1782$

$Out[\#] = \left\{ \left\{ -1, \frac{687}{820} \right\}, \left\{ -0.8, \frac{1228}{1497} \right\}, \left\{ -0.6, \frac{518}{699} \right\}, \left\{ -0.4, \frac{958}{1483} \right\}, \left\{ -0.2, \frac{579}{1969} \right\}, \right. \\ \left. \left\{ 0., \frac{734}{1797} \right\}, \left\{ 0.2, \frac{579}{1969} \right\}, \left\{ 0.4, \frac{97}{433} \right\}, \left\{ 0.6, \frac{437}{2604} \right\}, \left\{ 0.8, \frac{370}{2981} \right\}, \left\{ 1, \frac{169}{1689} \right\} \right\}$

$Out[\#] = \left\{ \left\{ -1, \frac{205}{1024} \right\}, \left\{ -0.8, \frac{1497}{8192} \right\}, \left\{ -0.6, \frac{699}{4096} \right\}, \left\{ -0.4, \frac{1483}{8192} \right\}, \left\{ -0.2, \frac{1969}{8192} \right\}, \right.$
 $\left. \left\{ 0., \frac{1797}{8192} \right\}, \left\{ 0.2, \frac{1969}{8192} \right\}, \left\{ 0.4, \frac{2165}{8192} \right\}, \left\{ 0.6, \frac{651}{2048} \right\}, \left\{ 0.8, \frac{2981}{8192} \right\}, \left\{ 1., \frac{1689}{4096} \right\} \right\}$





Out[]= 1699

Out[]= 2685

Out[]= 1751

Out[]= 2057

Out[]= 1519

Out[]= 2829

Out[]= 1622

Out[]= 2222

Out[]= 1328

Out[]= 3059

Out[]= 1344

Out[]= 2461

Out[]= 1282

Out[]= 3181

Out[]= 1174

Out[]= 2555

Out[]= 1022

Out[]= 3501

Out[]= 962

Out[]= 2707

Out[]= 979

Out[]= 3662

Out[]= 836

Out[]= 2715

Out[]= 870

Out[]= 3667

Out[]= 827

Out[]= 2828

Out[]= 891

Out[]= 3781

Out[]= 666

Out[]= 2854

Out[]= 858

Out[]= 3860

Out[]= 633

Out[]= 2841

Out[]= 867

Out[]= 3812

Out[]= 682

Out[]= 2831

Out[]= 993

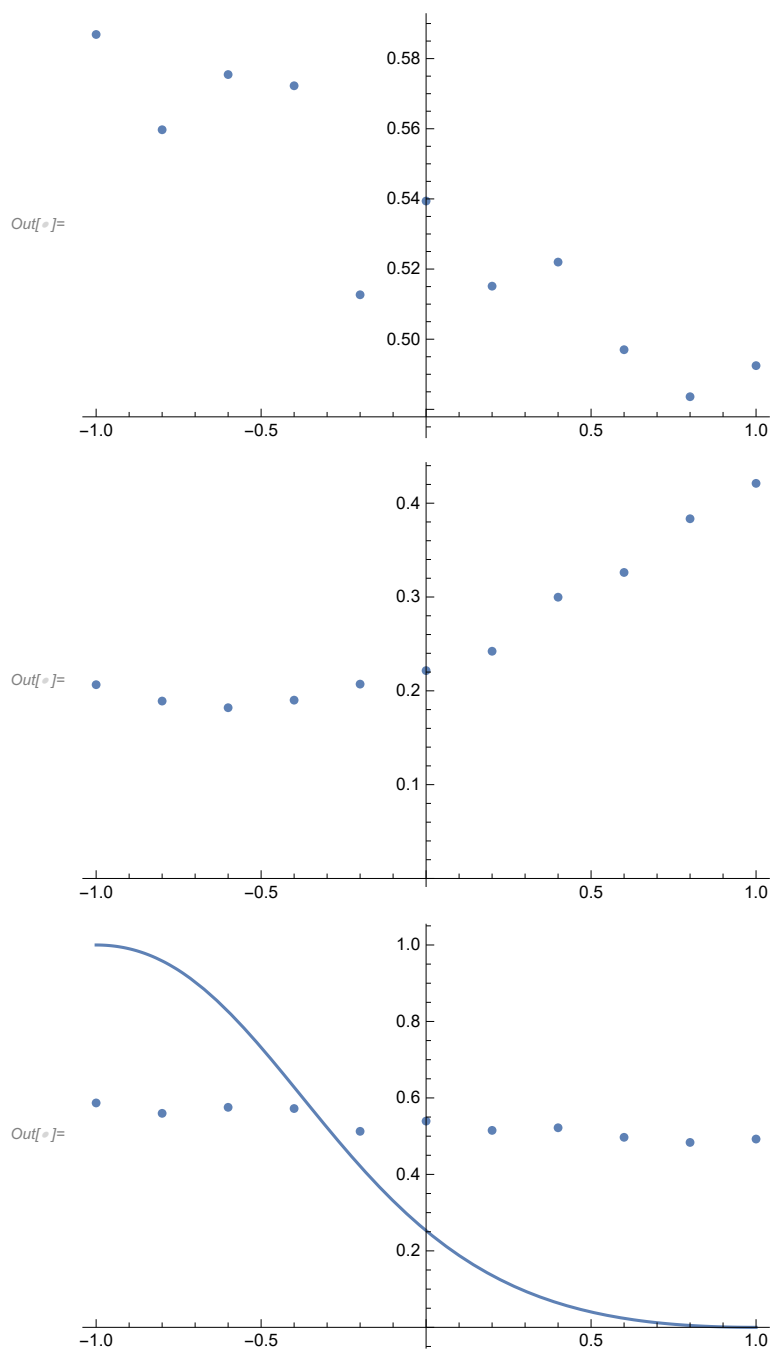
Out[]= 3740

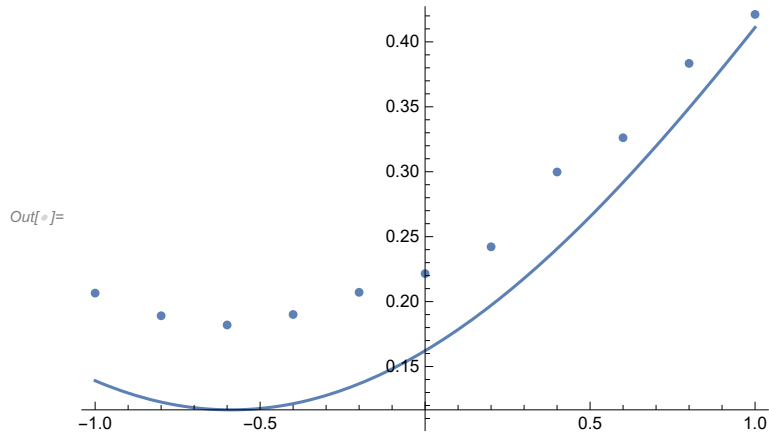
Out[]= 699

Out[]= 2760

Out[]= $\left\{ \left\{ -1, \frac{331}{564} \right\}, \left\{ -0.8, \frac{867}{1549} \right\}, \left\{ -0.6, \frac{286}{497} \right\}, \left\{ -0.4, \frac{99}{173} \right\}, \left\{ -0.2, \frac{870}{1697} \right\}, \right.$
 $\left. \left\{ 0., \frac{89}{165} \right\}, \left\{ 0.2, \frac{511}{992} \right\}, \left\{ 0.4, \frac{641}{1228} \right\}, \left\{ 0.6, \frac{83}{167} \right\}, \left\{ 0.8, \frac{1519}{3141} \right\}, \left\{ 1, \frac{1699}{3450} \right\} \right\}$

Out[]= $\left\{ \left\{ -1, \frac{423}{2048} \right\}, \left\{ -0.8, \frac{1549}{8192} \right\}, \left\{ -0.6, \frac{1491}{8192} \right\}, \left\{ -0.4, \frac{1557}{8192} \right\}, \left\{ -0.2, \frac{1697}{8192} \right\}, \right.$
 $\left. \left\{ 0., \frac{1815}{8192} \right\}, \left\{ 0.2, \frac{31}{128} \right\}, \left\{ 0.4, \frac{307}{1024} \right\}, \left\{ 0.6, \frac{167}{512} \right\}, \left\{ 0.8, \frac{3141}{8192} \right\}, \left\{ 1., \frac{1725}{4096} \right\} \right\}$





In[]:= (*ibmq_jakarta*)

ZeroZeroFirst10ibmqjakarta = 479
 ZeroOneFirst10ibmqjakarta = 3391
 OneZeroFirst10ibmqjakarta = 2666
 OneOneFirst10ibmqjakarta = 1656

ZeroZeroFirst08ibmqjakarta = 470
 ZeroOneFirst08ibmqjakarta = 3835
 OneZeroFirst08ibmqjakarta = 2275
 OneOneFirst08ibmqjakarta = 1612

ZeroZeroFirst06ibmqjakarta = 479
 ZeroOneFirst06ibmqjakarta = 3391
 OneZeroFirst06ibmqjakarta = 2666
 OneOneFirst06ibmqjakarta = 1656

ZeroZeroFirst04ibmqjakarta = 607
 ZeroOneFirst04ibmqjakarta = 4535
 OneZeroFirst04ibmqjakarta = 1485
 OneOneFirst04ibmqjakarta = 1565

ZeroZeroFirst02ibmqjakarta = 717
 ZeroOneFirst02ibmqjakarta = 4916
 OneZeroFirst02ibmqjakarta = 1094
 OneOneFirst02ibmqjakarta = 1465

ZeroZeroFirst00ibmqjakarta = 692
 ZeroOneFirst00ibmqjakarta = 5294
 OneZeroFirst00ibmqjakarta = 808
 OneOneFirst00ibmqjakarta = 1398

ZeroZeroSecond02ibmqjakarta = 876
 ZeroOneSecond02ibmqjakarta = 5467
 OneZeroSecond02ibmqjakarta = 542
 OneOneSecond02ibmqjakarta = 1307

ZeroZeroSecond04ibmqjakarta = 1059
 ZeroOneSecond04ibmqjakarta = 5558

```
OneZeroSecond04ibmqjakarta = 350
OneOneSecond04ibmqjakarta = 1225
```

```
ZeroZeroSecond06ibmqjakarta = 1197
ZeroOneSecond06ibmqjakarta = 5675
OneZeroSecond06ibmqjakarta = 216
OneOneSecond06ibmqjakarta = 1104
```

```
ZeroZeroSecond08ibmqjakarta = 1353
ZeroOneSecond08ibmqjakarta = 5682
OneZeroSecond08ibmqjakarta = 149
OneOneSecond08ibmqjakarta = 1008
```

```
ZeroZeroSecond10ibmqjakarta = 1525
ZeroOneSecond10ibmqjakarta = 5627
OneZeroSecond10ibmqjakarta = 168
OneOneSecond10ibmqjakarta = 872
```

```
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]
```


Out[]= 479

Out[]= 3391

Out[]= 2666

Out[]= 1656

Out[]= 470

Out[]= 3835

Out[]= 2275

Out[]= 1612

Out[]= 479

Out[]= 3391

Out[]= 2666

Out[]= 1656

Out[]= 607

Out[]= 4535

Out[]= 1485

Out[]= 1565

Out[]= 717

Out[]= 4916

Out[]= 1094

Out[]= 1465

Out[]= 692

Out[]= 5294

Out[]= 808

Out[]= 1398

Out[]= 876

Out[]= 5467

Out[]= 542

Out[]= 1307

Out[]= 1059

Out[]= 5558

Out[]= 350

Out[]= 1225

Out[]= 1197

Out[]= 5675

Out[]= 216

Out[]= 1104

Out[]= 1353

Out[]= 5682

Out[]= 149

Out[]= 1008

Out[]= 1525

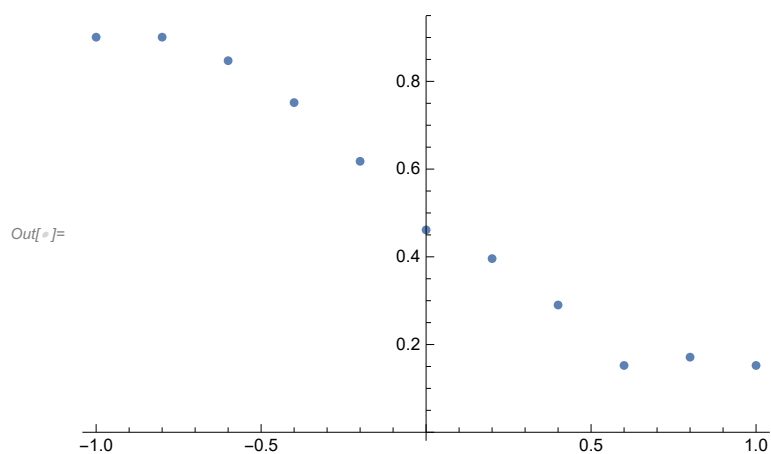
Out[]= 5627

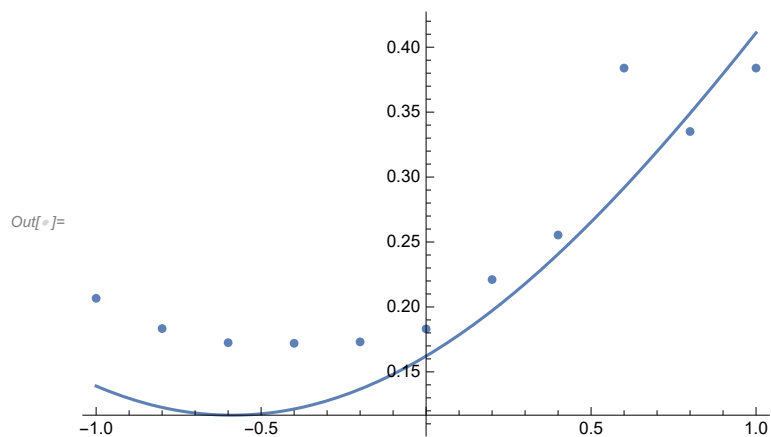
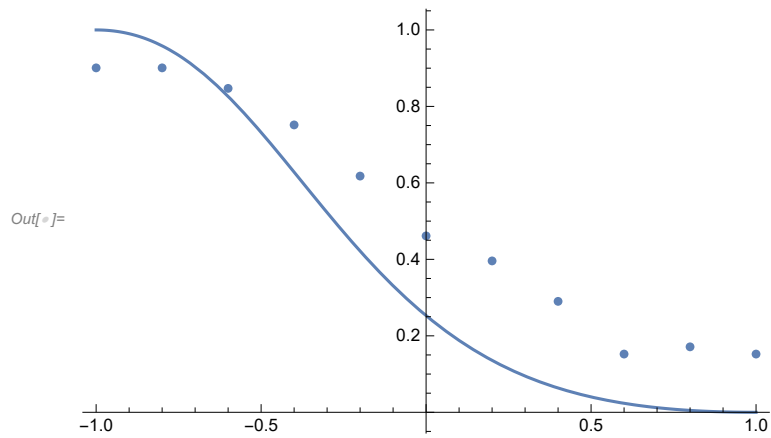
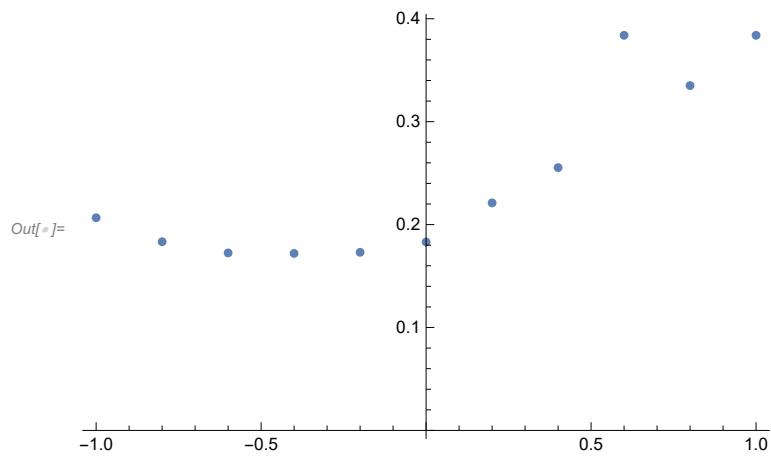
Out[]= 168

Out[]= 872

Out[]= $\left\{ \left\{ -1, \frac{1525}{1693} \right\}, \left\{ -0.8, \frac{1353}{1502} \right\}, \left\{ -0.6, \frac{133}{157} \right\}, \left\{ -0.4, \frac{1059}{1409} \right\}, \left\{ -0.2, \frac{438}{709} \right\}, \right.$
 $\left. \left\{ 0., \frac{173}{375} \right\}, \left\{ 0.2, \frac{717}{1811} \right\}, \left\{ 0.4, \frac{607}{2092} \right\}, \left\{ 0.6, \frac{479}{3145} \right\}, \left\{ 0.8, \frac{94}{549} \right\}, \left\{ 1, \frac{479}{3145} \right\} \right\}$

Out[]= $\left\{ \left\{ -1, \frac{1693}{8192} \right\}, \left\{ -0.8, \frac{751}{4096} \right\}, \left\{ -0.6, \frac{1413}{8192} \right\}, \left\{ -0.4, \frac{1409}{8192} \right\}, \left\{ -0.2, \frac{709}{4096} \right\}, \right.$
 $\left. \left\{ 0., \frac{375}{2048} \right\}, \left\{ 0.2, \frac{1811}{8192} \right\}, \left\{ 0.4, \frac{523}{2048} \right\}, \left\{ 0.6, \frac{3145}{8192} \right\}, \left\{ 0.8, \frac{2745}{8192} \right\}, \left\{ 1., \frac{3145}{8192} \right\} \right\}$





Out[]= 479

Out[]= 3391

Out[]= 2666

Out[]= 1656

Out[]= 470

`Out[]=` 3835

`Out[]=` 2275

`Out[]=` 1612

`Out[]=` 479

`Out[]=` 3391

`Out[]=` 2666

`Out[]=` 1656

`Out[]=` 607

`Out[]=` 4535

`Out[]=` 1485

`Out[]=` 1565

`Out[]=` 717

`Out[]=` 4916

`Out[]=` 1094

`Out[]=` 1465

`Out[]=` 692

`Out[]=` 5294

`Out[]=` 808

`Out[]=` 1398

`Out[]=` 876

`Out[]=` 5467

`Out[]=` 542

`Out[]=` 1307

`Out[]=` 1059

`Out[]=` 5558

`Out[]=` 350

`Out[]=` 1225

`Out[]=` 1197

`Out[]=` 5675

`Out[]=` 216

`Out[]=` 1104

Out[]= 1353

Out[]= 5682

Out[]= 149

Out[]= 1008

Out[]= 1525

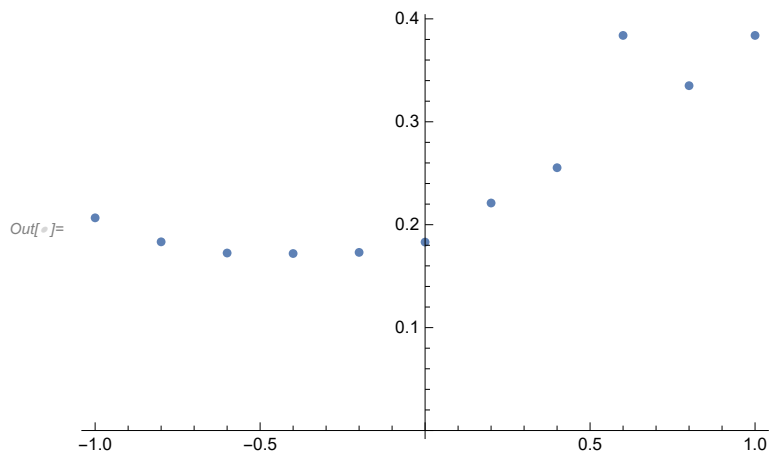
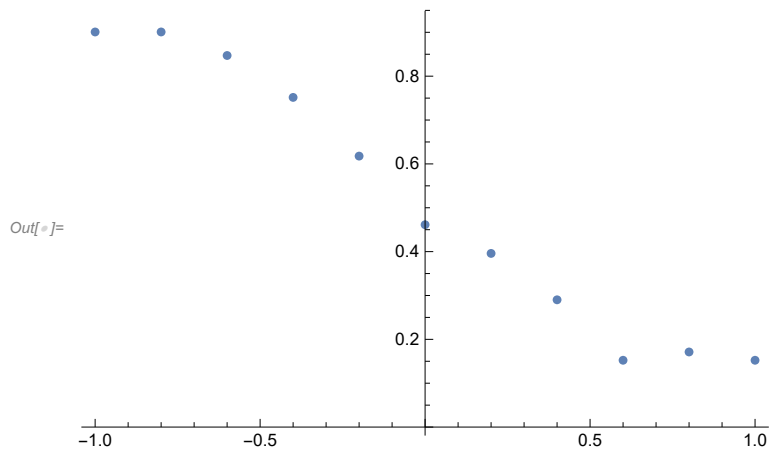
Out[]= 5627

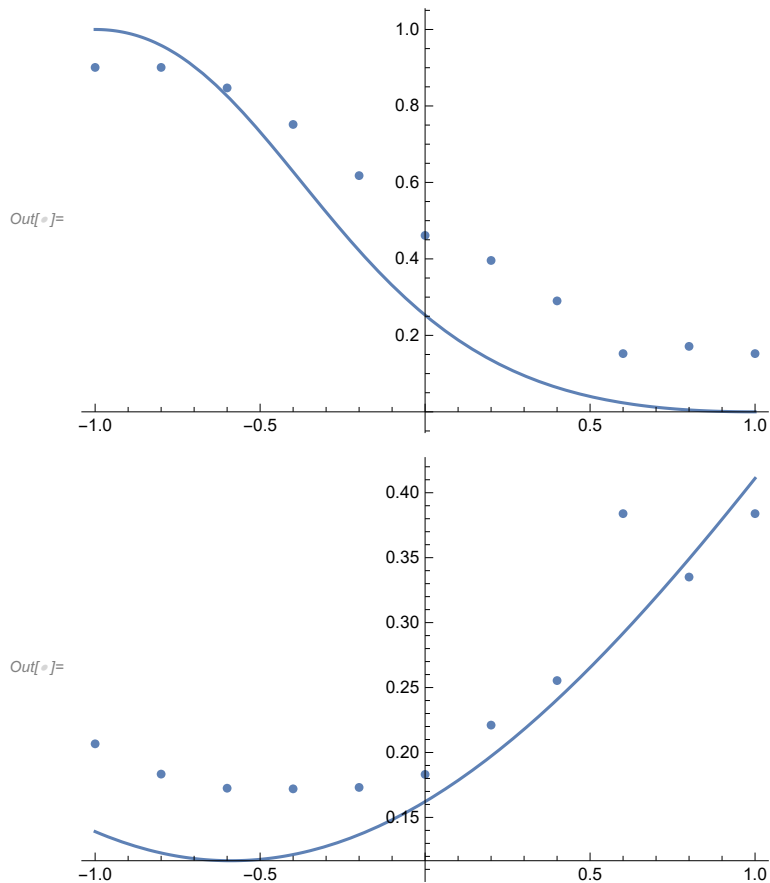
Out[]= 168

Out[]= 872

Out[]= $\left\{ \left\{ -1, \frac{1525}{1693} \right\}, \left\{ -0.8, \frac{1353}{1502} \right\}, \left\{ -0.6, \frac{133}{157} \right\}, \left\{ -0.4, \frac{1059}{1409} \right\}, \left\{ -0.2, \frac{438}{709} \right\}, \right.$
 $\left. \left\{ 0., \frac{173}{375} \right\}, \left\{ 0.2, \frac{717}{1811} \right\}, \left\{ 0.4, \frac{607}{2092} \right\}, \left\{ 0.6, \frac{479}{3145} \right\}, \left\{ 0.8, \frac{94}{549} \right\}, \left\{ 1, \frac{479}{3145} \right\} \right\}$

Out[]= $\left\{ \left\{ -1, \frac{1693}{8192} \right\}, \left\{ -0.8, \frac{751}{4096} \right\}, \left\{ -0.6, \frac{1413}{8192} \right\}, \left\{ -0.4, \frac{1409}{8192} \right\}, \left\{ -0.2, \frac{709}{4096} \right\}, \right.$
 $\left. \left\{ 0., \frac{375}{2048} \right\}, \left\{ 0.2, \frac{1811}{8192} \right\}, \left\{ 0.4, \frac{523}{2048} \right\}, \left\{ 0.6, \frac{3145}{8192} \right\}, \left\{ 0.8, \frac{2745}{8192} \right\}, \left\{ 1., \frac{3145}{8192} \right\} \right\}$





```
In[ ]:= (*ibm_lagos*)
ZeroZeroFirst10ibmlagos = 143
ZeroOneFirst10ibmlagos = 3177
OneZeroFirst10ibmlagos = 3354
OneOneFirst10ibmlagos = 1518

ZeroZeroFirst08ibmlagos = 178
ZeroOneFirst08ibmlagos = 3694
OneZeroFirst08ibmlagos = 2811
OneOneFirst08ibmlagos = 1509

ZeroZeroFirst06ibmlagos = 225
ZeroOneFirst06ibmlagos = 4011
OneZeroFirst06ibmlagos = 2348
OneOneFirst06ibmlagos = 1608

ZeroZeroFirst04ibmlagos = 255
ZeroOneFirst04ibmlagos = 4370
OneZeroFirst04ibmlagos = 1964
OneOneFirst04ibmlagos = 1603

ZeroZeroFirst02ibmlagos = 336
ZeroOneFirst02ibmlagos = 4818
OneZeroFirst02ibmlagos = 1520
```

OneOneFirst02ibmlagos = 1518

ZeroZeroFirst00ibmlagos = 453

ZeroOneFirst00ibmlagos = 5089

OneZeroFirst00ibmlagos = 1168

OneOneFirst00ibmlagos = 1482

ZeroZeroSecond02ibmlagos = 541

ZeroOneSecond02ibmlagos = 5305

OneZeroSecond02ibmlagos = 837

OneOneSecond02ibmlagos = 1509

ZeroZeroSecond04ibmlagos = 756

ZeroOneSecond04ibmlagos = 5473

OneZeroSecond04ibmlagos = 567

OneOneSecond04ibmlagos = 1396

ZeroZeroSecond06ibmlagos = 823

ZeroOneSecond06ibmlagos = 5744

OneZeroSecond06ibmlagos = 377

OneOneSecond06ibmlagos = 1248

ZeroZeroSecond08ibmlagos = 1012

ZeroOneSecond08ibmlagos = 5725

OneZeroSecond08ibmlagos = 247

OneOneSecond08ibmlagos = 1208

ZeroZeroSecond10ibmlagos = 1144

ZeroOneSecond10ibmlagos = 5743

OneZeroSecond10ibmlagos = 197

OneOneSecond10ibmlagos = 1108

CosSqibmlagos =

$$\left\{ \begin{aligned} &\{-1, \text{ZeroZeroSecond10ibmlagos} / (\text{OneZeroSecond10ibmlagos} + \text{ZeroZeroSecond10ibmlagos})\}, \\ &\{-0.8, \text{ZeroZeroSecond08ibmlagos} / (\text{OneZeroSecond08ibmlagos} + \text{ZeroZeroSecond08ibmlagos})\}, \\ &\{-0.6, \text{ZeroZeroSecond06ibmlagos} / (\text{OneZeroSecond06ibmlagos} + \text{ZeroZeroSecond06ibmlagos})\}, \\ &\{-0.4, \text{ZeroZeroSecond04ibmlagos} / (\text{OneZeroSecond04ibmlagos} + \text{ZeroZeroSecond04ibmlagos})\}, \\ &\{-0.2, \text{ZeroZeroSecond02ibmlagos} / (\text{OneZeroSecond02ibmlagos} + \text{ZeroZeroSecond02ibmlagos})\}, \\ &\{0.0, \text{ZeroZeroFirst00ibmlagos} / (\text{OneZeroFirst00ibmlagos} + \text{ZeroZeroFirst00ibmlagos})\}, \\ &\{0.2, \text{ZeroZeroFirst02ibmlagos} / (\text{OneZeroFirst02ibmlagos} + \text{ZeroZeroFirst02ibmlagos})\}, \\ &\{0.4, \text{ZeroZeroFirst04ibmlagos} / (\text{OneZeroFirst04ibmlagos} + \text{ZeroZeroFirst04ibmlagos})\}, \\ &\{0.6, \text{ZeroZeroFirst06ibmlagos} / (\text{OneZeroFirst06ibmlagos} + \text{ZeroZeroFirst06ibmlagos})\}, \\ &\{0.8, \text{ZeroZeroFirst08ibmlagos} / (\text{OneZeroFirst08ibmlagos} + \text{ZeroZeroFirst08ibmlagos})\}, \\ &\{1, \text{ZeroZeroFirst10ibmlagos} / (\text{OneZeroFirst10ibmlagos} + \text{ZeroZeroFirst10ibmlagos})\} \end{aligned} \right\}$$

$$\text{Decisivenessibmlagos} = \left\{ \begin{aligned} &\{-1, (\text{OneZeroSecond10ibmlagos} + \text{ZeroZeroSecond10ibmlagos}) / 8192\}, \\ &\{-0.8, (\text{OneZeroSecond08ibmlagos} + \text{ZeroZeroSecond08ibmlagos}) / 8192\}, \\ &\{-0.6, (\text{OneZeroSecond06ibmlagos} + \text{ZeroZeroSecond06ibmlagos}) / 8192\}, \\ &\{-0.4, (\text{OneZeroSecond04ibmlagos} + \text{ZeroZeroSecond04ibmlagos}) / 8192\}, \\ &\{-0.2, (\text{OneZeroSecond02ibmlagos} + \text{ZeroZeroSecond02ibmlagos}) / 8192\}, \\ &\{-0.0, (\text{OneZeroFirst00ibmlagos} + \text{ZeroZeroFirst00ibmlagos}) / 8192\}, \end{aligned} \right\}$$

```

{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[]= 143

Out[]= 3177

Out[]= 3354

Out[]= 1518

Out[]= 178

Out[]= 3694

Out[]= 2811

Out[]= 1509

Out[]= 225

Out[]= 4011

Out[]= 2348

Out[]= 1608

Out[]= 255

Out[]= 4370

Out[]= 1964

Out[]= 1603

Out[]= 336

Out[]= 4818

Out[]= 1520

Out[]= 1518

Out[]= 453

Out[]= 5089

Out[]= 1168

Out[]= 1482

Out[]= 541

$$\text{Out}[*]= 5305$$

$$\text{Out}[*]= 837$$

$$\text{Out}[*]= 1509$$

$$\text{Out}[*]= 756$$

$$\text{Out}[*]= 5473$$

$$\text{Out}[*]= 567$$

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

$$\text{Out}[*]= 823$$

$$\text{Out}[*]= 5744$$

$$\text{Out}[*]= 377$$

$$\text{Out}[*]= 1248$$

$$\text{Out}[*]= 1012$$

$$\text{Out}[*]= 5725$$

$$\text{Out}[*]= 247$$

$$\text{Out}[*]= 1208$$

$$\text{Out}[*]= 1144$$

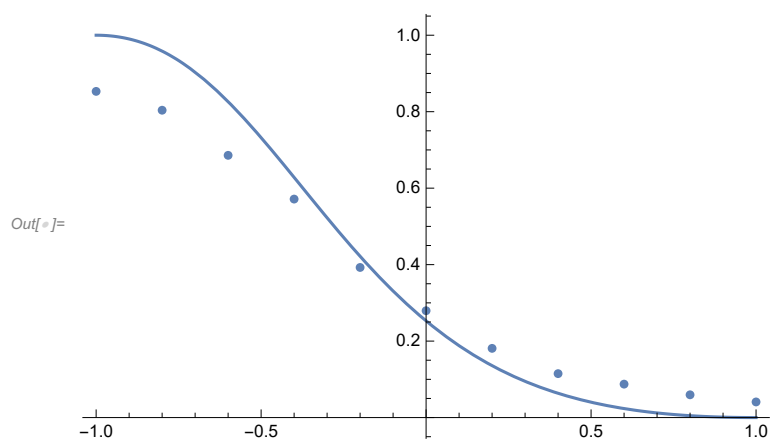
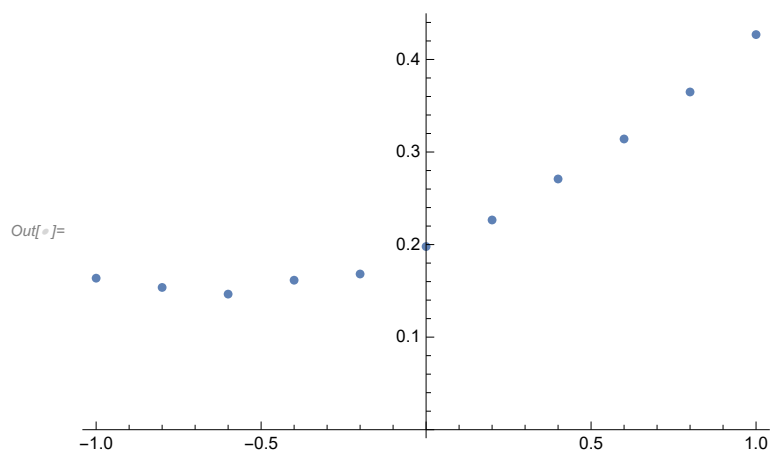
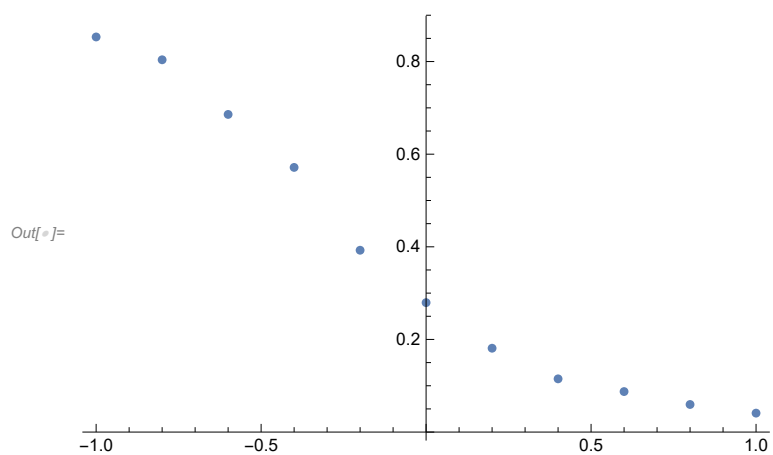
$$\text{Out}[*]= 5743$$

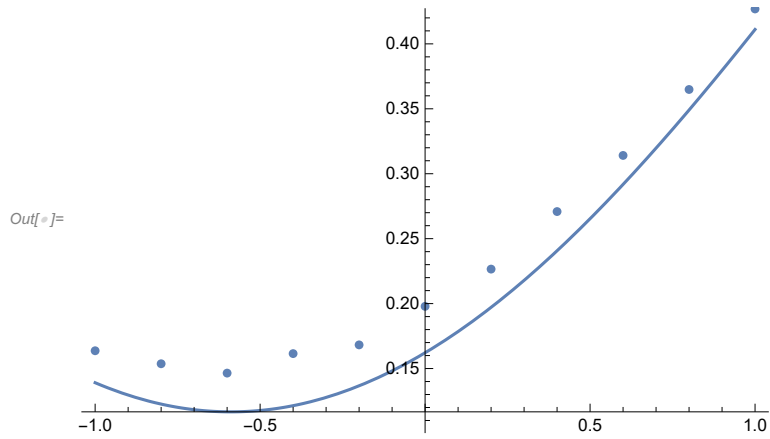
$$\text{Out}[*]= 197$$

$$\text{Out}[*]= 1108$$

$$\text{Out}[*]= \left\{ \left\{ -1, \frac{1144}{1341} \right\}, \left\{ -0.8, \frac{1012}{1259} \right\}, \left\{ -0.6, \frac{823}{1200} \right\}, \left\{ -0.4, \frac{4}{7} \right\}, \left\{ -0.2, \frac{541}{1378} \right\}, \right. \\ \left. \left\{ 0., \frac{453}{1621} \right\}, \left\{ 0.2, \frac{21}{116} \right\}, \left\{ 0.4, \frac{255}{2219} \right\}, \left\{ 0.6, \frac{225}{2573} \right\}, \left\{ 0.8, \frac{178}{2989} \right\}, \left\{ 1., \frac{11}{269} \right\} \right\}$$

$$\text{Out}[*]= \left\{ \left\{ -1, \frac{1341}{8192} \right\}, \left\{ -0.8, \frac{1259}{8192} \right\}, \left\{ -0.6, \frac{75}{512} \right\}, \left\{ -0.4, \frac{1323}{8192} \right\}, \left\{ -0.2, \frac{689}{4096} \right\}, \right. \\ \left. \left\{ 0., \frac{1621}{8192} \right\}, \left\{ 0.2, \frac{29}{128} \right\}, \left\{ 0.4, \frac{2219}{8192} \right\}, \left\{ 0.6, \frac{2573}{8192} \right\}, \left\{ 0.8, \frac{2989}{8192} \right\}, \left\{ 1., \frac{3497}{8192} \right\} \right\}$$





Out[]= 143

Out[]= 3177

Out[]= 3354

Out[]= 1518

Out[]= 178

Out[]= 3694

Out[]= 2811

Out[]= 1509

Out[]= 225

Out[]= 4011

Out[]= 2348

Out[]= 1608

Out[]= 255

Out[]= 4370

Out[]= 1964

Out[]= 1603

Out[]= 336

Out[]= 4818

Out[]= 1520

Out[]= 1518

Out[]= 453

Out[]= 5089

Out[]= 1168

Out[]= 1482

Out[]= 541

Out[]= 5305

Out[]= 837

Out[]= 1509

Out[]= 756

Out[]= 5473

Out[]= 567

Out[]= 1396

Out[]= 823

Out[]= 5744

Out[]= 377

Out[]= 1248

Out[]= 1012

Out[]= 5725

Out[]= 247

Out[]= 1208

Out[]= 1144

Out[]= 5743

Out[]= 197

Out[]= 1108

Out[]= $\left\{ \left\{ -1, \frac{1144}{1341} \right\}, \left\{ -0.8, \frac{1012}{1259} \right\}, \left\{ -0.6, \frac{823}{1200} \right\}, \left\{ -0.4, \frac{4}{7} \right\}, \left\{ -0.2, \frac{541}{1378} \right\}, \right.$
 $\left. \left\{ 0., \frac{453}{1621} \right\}, \left\{ 0.2, \frac{21}{116} \right\}, \left\{ 0.4, \frac{255}{2219} \right\}, \left\{ 0.6, \frac{225}{2573} \right\}, \left\{ 0.8, \frac{178}{2989} \right\}, \left\{ 1, \frac{11}{269} \right\} \right\}$

Out[]= $\left\{ \left\{ -1, \frac{1341}{8192} \right\}, \left\{ -0.8, \frac{1259}{8192} \right\}, \left\{ -0.6, \frac{75}{512} \right\}, \left\{ -0.4, \frac{1323}{8192} \right\}, \left\{ -0.2, \frac{689}{4096} \right\}, \right.$
 $\left. \left\{ 0., \frac{1621}{8192} \right\}, \left\{ 0.2, \frac{29}{128} \right\}, \left\{ 0.4, \frac{2219}{8192} \right\}, \left\{ 0.6, \frac{2573}{8192} \right\}, \left\{ 0.8, \frac{2989}{8192} \right\}, \left\{ 1., \frac{3497}{8192} \right\} \right\}$

