Part 1: Answers - Item analysis

item result	test score
1	82
0	70
1	91
1	80
0	74
1	80
1	93
0	30
0	68
1	78

Determine Difficulty & Discrimination Indices

Difficulty - Frequencies

Answer: .60

Item Score					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	incorrect	4	40.0	40	40.0
	correct	6	60.0	60.0	100.0
	Total	10	100.0	100.0	

Discrimination - Point Biserial Correlation by hand

Test Score			
Item Score	Mean	Std. Deviation	% of Total N
incorrect	60.50	20.486	40.0%
correct	84.00	6.356	60.0%
Total	74.60	17.595	100.0%

$$r_{pb} = \frac{84 - 60.5}{13.421}\sqrt{.6(.4)} = .86$$

Assuming this was intended to be a moderately difficult item, was it a good item?

Yes, difficulty index of .60 in the acceptable range and discrimination index is excellent.

Part 2: Answers - Item analysis

Test score	Item score
20	1
15	0
16	1
16	1
12	0
11	0
14	0
12	1

Determine the Difficulty and Discrimination indices.

Difficulty - Frequencies

	item score	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	incorrect	4	50.0	50	50.0
	correct	4	50.0	50.0	100.0
	Total	8	100.0	100.0	

Discrimination Index - point biserial

test score			
item score	Mean	Std. Deviation	% of Total N
incorrect	13.00	1.826	50.0%
correct	16.00	3.266	50.0%
Total	14.50	2.928	100.0%

$$r_{pb} = \frac{16 - 13}{2.546}\sqrt{.5(.5)} = .589$$

Interpretation: Assuming item meant to be moderately difficult, this is an excellent item since both the difficulty and discrimination indices fall in the optimal range.

Part 3: Answers - Item analysis (classifications from mastery testing)

Test score	item score
20	1
15	0
16	1
16	1
12	0
11	0
14	0
12	1

Determine the Difficulty & Discrimination indices. Use cut score of (.80)(20) = 16

1. First, recode scores to classifications: masters (1) and non masters (0) - use transform – recode
2. Difficulty index = .50:

Frequencies

	item score	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	incorrect	4	50.0	50.0	50.0
	correct	4	50.0	50.0	100.0
	Total	8	100.0	100.0	

3. Discrimination Index - Phi = .775

		test classification		
		nonmaster	master	Total
item score	incorrect	4	0	4
	correct	1	3	4
Total		5	3	8

		Value	Approx. Sig.
Nominal by Nominal	Phi	0.775	0.028
	Cramer's V	0.775	0.028
N of Valid Cases	8		

Part 4: Answers - Item analysis (classifications from mastery testing)

Use cut score (.70)(10) = 7

quiz score	item score
6	0
5	0
7	0
8	1
9	1
8	1
6	0
5	0
4	0
7	1

Determine Difficulty and Discrimination Indices

Difficulty Index = .40

item score					
	Frequency	Percent	Valid Percent	Cumulative Percent	
Valid	incorrect	6	60.0	60.0	60.0
	correct	4	40.0	40.0	100.0
	Total	10	100.0	100.0	

Discrimination Index = .82

		quiz classification		
		nonmaster	master	Total
item score	incorrect	5	1	6
	correct	0	4	4
Total	5	5	10	

		Value	Approx. Sig.
Nominal by Nominal	Phi	0.816	0.010
	Cramer's V	0.816	0.010
N of Valid Cases	10		