



# Bids & Brains

## Answer Key



### MATHEMATICS CLUB

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#### §1 Round 1

1. KV will never trade. All Nash Equilibria in 8 possible strategies lie in No.
2. Navin has a winning strategy. If Deena picks  $n$ , Navin can pick  $8 - n$  and in 6 turns reach 48.
3. 14
4.  $\frac{3n}{2}$
5. Shivanshu will win
6. 1
7.  $1/2$
8. 181
9.  $72^\circ$
10. 0.1875 or  $(96/512)$

#### §2 Round 2

##### §2.1 Probability

1.  $88^2 = 7744$
2.  $\frac{5 - \pi}{4}$
3. 660
4. 300
5.  $\frac{\pi}{2}$
6. 128

#### §3 Round 3

1. -1
2.  $\frac{1 + (1/3)^n}{2}$
3. 0

##### §2.2 Linear Algebra

1. 21
2. 5
3. 0
4. -240
5. 18432
6.  $16^{136}$

##### §2.3 Geometry

1.  $1/37$
2.  $\sqrt{8^2 + 7^2}/2 = \sqrt{113}/2$
3. 251
4. 520
5. 725
6. 0

##### §2.4 Calculus

1.  $\frac{2}{25\sqrt{15}}$
2. 6
3. 2
4. 3888
5.  $\sqrt{\pi}$
6.  $\frac{7}{6}\pi^3$