Name Michael Plasmeier Per. 7

Grading for Pig Portfolio

use cover I got already

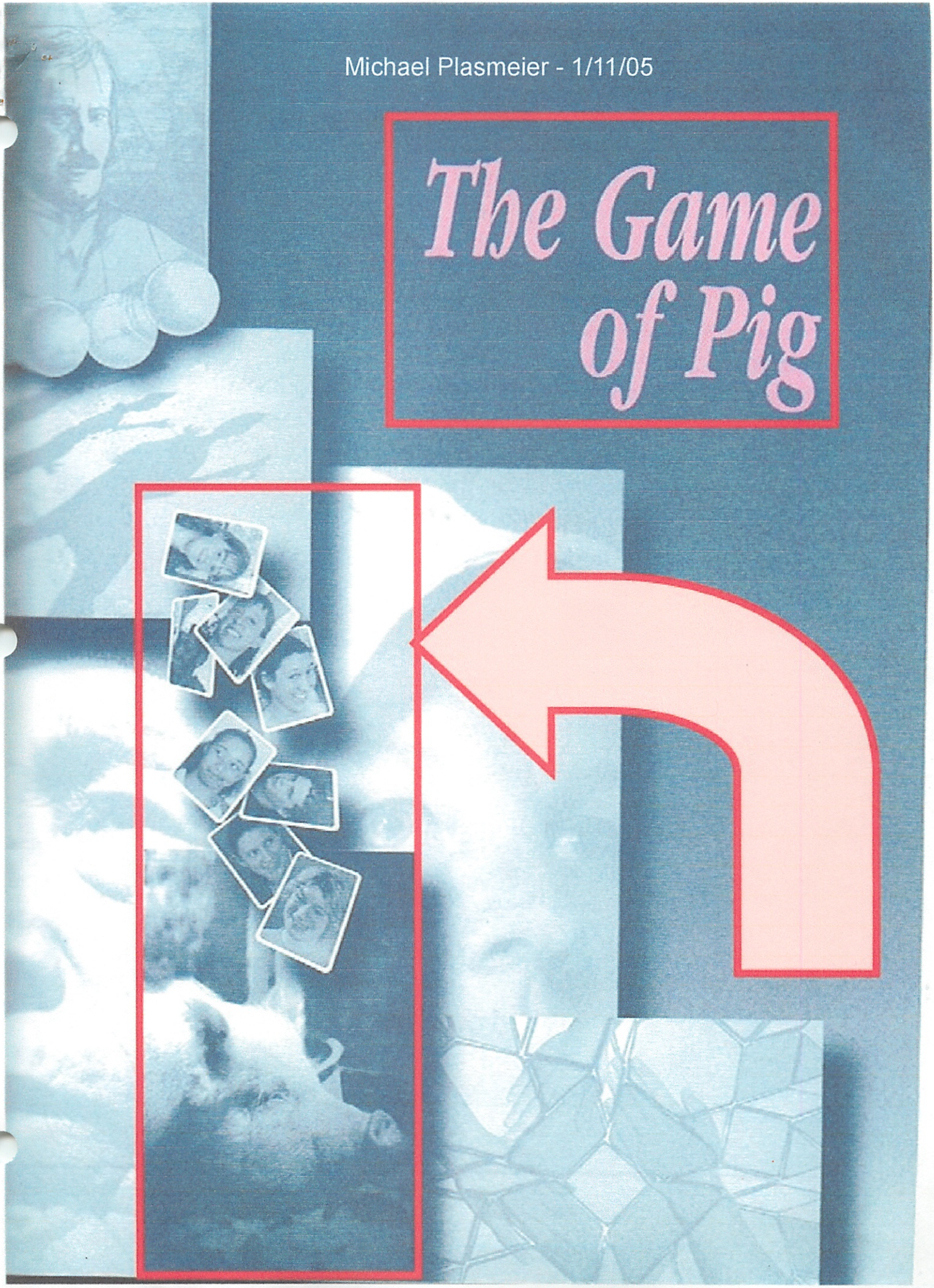
	Points
Cover Page with title, name & date	1
List of Topics Studied ~~or letter~~	5 → 3
All quizzes and tests	1
All POW grading sheets (3)	1
Homework Assignments	12
Total	20 → (18) +1

Make new cover or all covers?

Re look at POW 4

Michael Plasmeier - 1/11/05

The Game of Pig



January 10, 2005

Dear Mr. Trabosh:

We started out in this unit with learning a game, The Game of Pig. We played the game a few times, and tried to find the best strategy. In fact that is what we were trying to do throughout the entire unit.

We then played some probability games and found probability is expressed as P(1/2). We also flipped coins to review what we learned in years prior about probability. We also played a game Waiting for a Double, were we wanted to see how many heads we could get in a row. We also graphed this data on both paper and our TI-83+. Probility is simply possible for 1/total possible

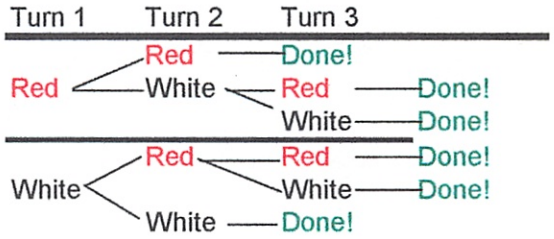
SP

We then watched darts fall randomly from the ceiling onto rug. We found the probability f a dart landing onto each color. These basic rugs were the start of highly complicated rugs getting into hundreds of squares.

We then played with dice and the probability of rolling numbers using 2 dices. We listed all of the combo nations on to a chart, which I later found out, could also be a called a rug. I liked this way of arranging data better then a tree. They can get highly complicated at times. Also you can make a rug with the diagonal down the center crossed out if the condition came up once, (One sock), it can't come up again. (Can't have the same sock 2x) You might also need to add the points from both turns.

H or T	**H**	**T**
H	H,H	H,T
T	T,H	T,T

Sample
- Tree
- Chart/Rug



We then learned about Al and Betty spinning spinners for money. Here we were introduced to the concept of Estimated Values, which we carried till the end of the unit. We learned that (points* probability *turns) was the key to finding E.V.'s

Next up was one and one where we only divided parts of rugs into smaller sections and then finding EV's. This dividing and some sections being worth points carried on to the end of the unit. We used %s now but we could also use the numbers, if the chance of getting each option is the same, like rolling a die in the game of pig.

We then played a lot more variations of these games. We also learned about a paper carrier, who had to options to see which one is better. We played these games many more times.

At last it was time to revert what we had learned back to pig. At first we played little pig, and then took what we learned to big pig to find the best place to stop was 20 rolls. I also found a shortcut to this 20 number by playing should I go on?

Sincerely,

Michael Plasmeier
P.D.:7

Pig Pop - Assessment

Name : M. Plasmeier

15 points

Date : 12/2

Be sure to read all directions CAREFULLY !!!!!

15

If you flip a coin three times, you get eight possible outcomes. Please list those outcomes as problem 1 and then compute 2 through 5. Write each answer as a fraction in lowest terms.

1. HHH HHT HTH HTT THH THT TTH TTT

The probability of :

2. Getting exactly three heads — 2. $\frac{1}{8}$

3. Getting exactly two heads — 3. $\frac{3}{8}$

4. Getting at most two heads — 4. $\frac{7}{8}$

5. Getting at least two heads — 5. $\frac{1}{2}$

Name Michael Plasmeier Quiz #1 (50 points)

Date 12/10 8848 Game of Pig

45/50

Find the probability for each event.

{5 pts}

1) Flip a coin two times: P(exactly one head) = $\frac{2}{4}$ → $\frac{1}{2}$

	H	T
H	H,H	H,T
T	T,H	T,T

{5 pts}

2) Roll a six-sided die, numbered 1 to 6: P(even number) = $\frac{3}{6}$ → $\frac{1}{2}$

1 2 3 4 5 6

{5 pts}

3) Picking two socks, one at a time, from a drawer that contains three brown and two blue socks :

P(two blue socks)= ~~$\frac{6}{25}$~~ $\frac{6}{20}$

	B	B	B	L	L
B	X	✓	✓		
B	✓	X	✓		
B	✓	✓	X		
L					
L					

X Don't count

{5 pts}

4) A red, white, and blue spinner is divided into three equal regions:

P(spinning two times & getting red both times) = $\frac{1}{9}$

R W B

R W B

5

Draw an AREA model and find the probability.

5) Flipping a coin and tossing a die numbered 1 to 6.

{5 pts} a) Find: P(H,6) = $\frac{1}{12}$

{5 pts} b) Find: P(T,odd number) = $\frac{3}{12} = \frac{1}{4}$

{5 pts}

AREA MODEL or TREE DIAGRAM

	1	2	3	4	5	6
H	·	·	·			✓
T	B		B		B	

Draw an AREA model and find the probability.

6) Spinning a red, blue, & white spinner with equal parts and flipping a coin.

{5 pts} a) Find: P(White, T) = $\frac{1}{6}$

{5 pts} b) P(not white, H) = $\frac{2}{6} = \frac{1}{3}$

{5 pts}

AREA MODEL or TREE DIAGRAM

	R	B	W
H	B	B	
T	A		

Michael Plasmeier

EV Assesment

12/22

1.

	10	5	1	1	1	1
10	X	15	11	11	11	11
5	15	X	6	6	6	6
1	11	6	X	2	2	2
1	11	6	2	X	2	2
1	11	6	2	2	X	2
1	11	6	2	2	2	X

$\frac{2}{30} \times 15 \times \frac{30}{1} = 30$

$\frac{8}{30} \times 11 \times \frac{30}{1} = 88$

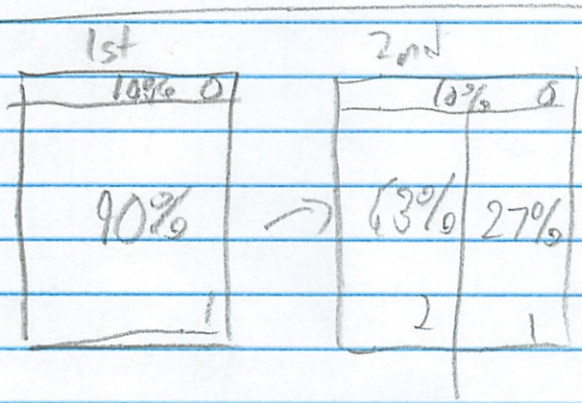
$\frac{8}{30} \times 6 \times \frac{30}{1} = 48$

$\frac{12}{30} \times 2 \times \frac{30}{1} = 24$

190/100 = $1.90

E.V. Per Turn

2.



$\frac{10}{100} \times 0 \times \frac{100}{1} = 0$

$\frac{27}{100} \times 1 \times \frac{100}{1} = 27$

$\frac{63}{100} \times 2 \times \frac{100}{1} = 126$

153/100 =

1.53 EV Per Turn

Name : Michael Plasmeier The Game of Pig : Expected Value Assessment Date : 12/21 Numb : 8848

18/20 +1

1. A $ 10 bill, $ 5 bill, and four $ 1 bills are placed in a bucket. Find the expected value per turn, if you are allowed to pull two bills, one at a time, without replacing the bill pulled first. Draw an area diagram (rug) and show all of work necessary to support your answer.

	10	5	1	1	1	1
10	X	15	11	11	11	11
5	15	X	6	6	6	6
1	11	6	X	2	2	2
1	11	6	2	X	2	2
1	11	6	2	2	X	2
1	11	6	2	2	2	X

$\frac{2}{30} \times 15 \times \frac{30}{1} = 30$

$\frac{8}{30} \times 11 \times \frac{30}{1} = 88$

$\frac{8}{30} \times 6 \times \frac{30}{1} = 48$

$\frac{12}{30} \times 2 \times \frac{30}{1} = 24$

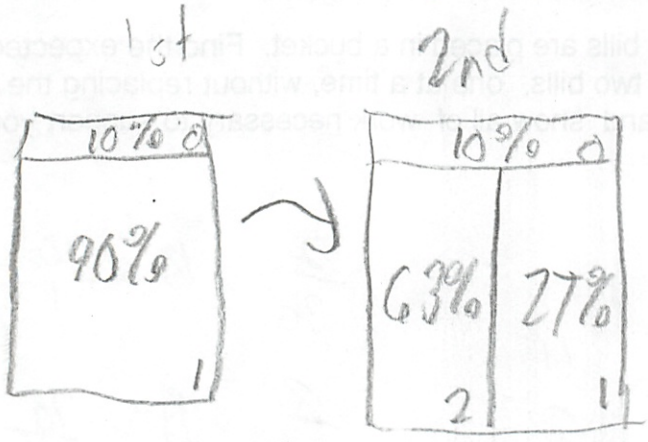
190

÷ 100

$1.90 E.V.

label: -1

2. Billy has 90 % accuracy from the free-throw line on his first shot, but only 70 % accuracy on his second shot. Draw an area diagram (rug) and show all of work necessary to support your answer in finding his expected points per one-and-one situation.



$\frac{10}{100} \times 0 \times \frac{100}{1} = 0$

$\frac{27}{100} \times 1 \times \frac{100}{1} = 27$

$\frac{63}{100} \times 2 \times \frac{100}{1} = \frac{126}{153}/100 = 1.53$ EV Points

for what?

−1

label

GRADING FOR POW 4

Points

1) Answers to Problems 1, 2 & 3

Omitted	0
One correct answer	3
Two correct answers	6
All 3 correct	9

2) Process (Problems made up to help)

Unrelated to the problems	0
Incomplete- only two extra problems	2
More than two extra problems – specifics omitted	4
Three or more extra problems, but drawings, tables omitted	6
Three or more extra problems, with drawings, tables	8

3) Ultimate Goal

Incorrect formula	0
Correct formula	3

Total Points ---------- 20

GRADING FOR POW 5

	Points
1) Process	
Omitted	0
Minimum description of experiment used for part a	5
Complete description of experiment used for part a	10
2) Solution	
Experimental & theoretical analysis omitted	0
Only experimental analysis included	4
Only theoretical analysis included	4
Experimental analysis included but theoretical analysis is incorrect	6
Correct theoretical analysis & experimental probability included	10

Total Points ---------- 20

Both theoretical experimental

8

Always X ; Always O then ? $\frac{50}{50}$ is not 50% !

18

GRADING FOR POW 6

Points

1) Strategies

Description of strategy omitted----------0
Incomplete description of strategy ----------5
Complete description of strategy for original game ----------10

2) Generalizations

Incorrect formula no support ---------- 1
Incorrect formula some support ---------- 3
Correct formula for winning original game of Linear Nim ---------- 6
Correct formula for winning any game of Linear Nim ---------- 8
(Who goes first omitted or incorrect)
Correct formula for winning any game of Linear Nim ---------- 10

Total Points ---------- 20

8

1 8
321
1 123 ①

2 12 4
832 1 ①

Coins, Coins (#10)

Michael Plasse 11/19

1. She forgot T, H See

	H	T
H	H, H	H, T
T	T, H	T, T

2.

	P	N	D
P	2	6	11
N	6	10	15
D	11	15	20

a: 2, 6, 11, 10, 15, 20 ¢

b: $\frac{1}{9}$

c: $\frac{1}{9}$ except for D: $\frac{2}{9}$, 15: $\frac{2}{9}$

3. They are similar because they show that you can have doubles not like pitbags

One + One

60% Solution #13

12/6

0 No: 40% Wrong? → 40/300 $\frac{4}{30}$ $\frac{2}{15}$ .133 40%

1 Yes: 60% No: 40% 100/300 $\frac{1}{3}$ .333 24%

2 Yes 60% Yes: 60% $\frac{120}{300}$ $\frac{12}{30}$ $\frac{4}{10}$ $\frac{2}{5}$ .4 36%

Most likely to score 2 pts

Homework #13 60% Solution:

1. Trys: 2 1 1 1 0 0 1 1 2 0 2 0 1 2 2 2 0 2 0 2

100 20 20 0 0 2

0 = 10
1 = 8
2 = 13

Class

40% DMs	
36% 0	24%
2 pts	1 pts

2. Most Frequent = 2

3. Average = 1

HW → 1. 100 trials 300 53-0 170 31-1 82 16-2 48

$\frac{36}{100} \times \frac{2}{1} \times \frac{100}{1} = 72$

2. Most Freq = 0

3. Average = 1.63

or average

Expected Value 24 + (36 × 2) = 80 pts / 100

$\frac{24}{100} \times \frac{1}{1} \times \frac{100}{1} = 24$

In the long run

Need 0 prob × pts × trys

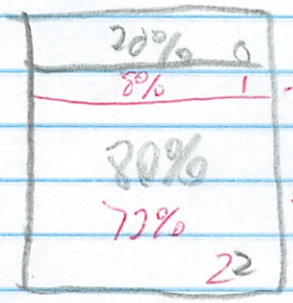
Class

406 .46 → 40 | 4 off
230 .26 → 36 | 10 off
254 .28 → 24 | 4 off
890

Streak Shooting Sally #16

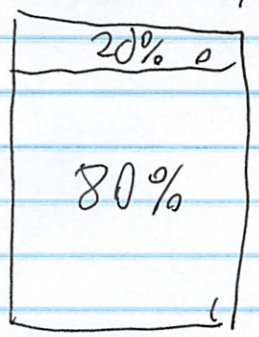
Michael Glasmeier

12/7

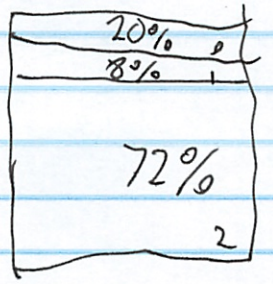


- 80 × 10 = 8%
- 80 × 90 = 72%

12 charts way



1st



2nd

1. 78% 0, 8% -1, 72% -2

2. $\frac{20}{100} \times \frac{0}{1} \times \frac{100}{1} = 0$

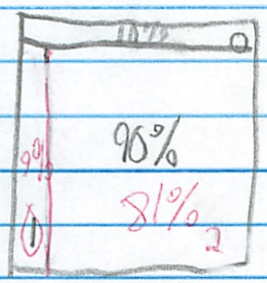
$\frac{8}{100} \times \frac{1}{1} \times \frac{100}{1} = 8$

$\frac{72}{100} \times \frac{2}{1} \times \frac{100}{1} = 144$

152 out of 100 toys

In Class - Shooting Charly

90% Foul Shoot



10 × 90 = 9

90 × 90 = 81

Most Likly = 2

Expected value per turn

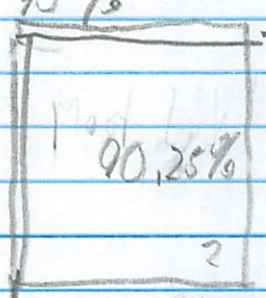
$\frac{10}{100} \times \frac{0}{1} \times \frac{100}{1} = 0$

$\frac{9}{100} \times \frac{1}{1} \times \frac{100}{1} = 9$

$\frac{81}{100} \times \frac{2}{1} \times \frac{100}{1} = 162$

171 / 100 = 1.71 pts per toy

95%



- 5% 0

Most Likly: 2

95 - 5 = 4.75%; 1

Expected value:

$\frac{5}{100} \times \frac{0}{1} \times \frac{100}{1} = 0$

$\frac{4.75}{100} \times 1 \times \frac{100}{1} = 4.75$

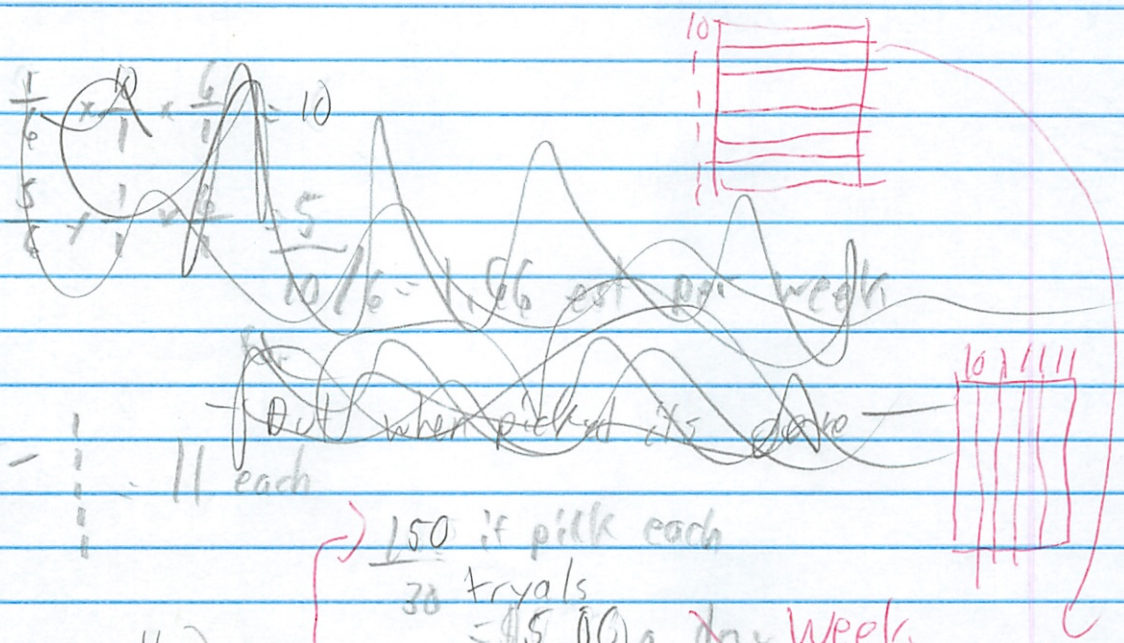
$\frac{90.25}{100} \times 2 \times \frac{100}{1} = 180.25$ / 100 = 1.8520 per turn

not shot

Carrier Payment (#19)

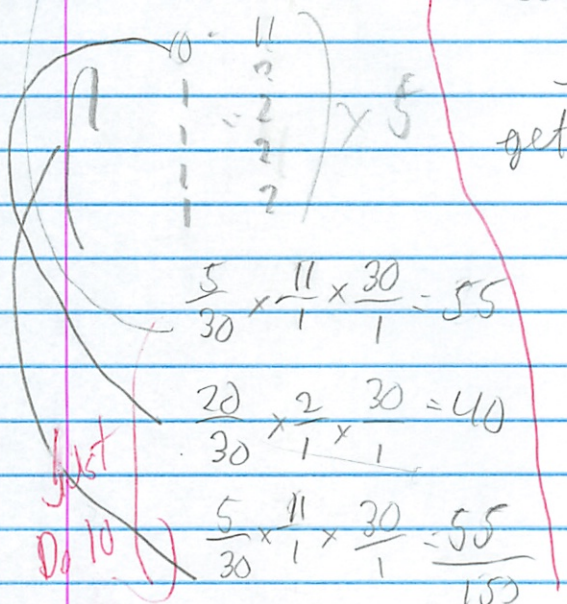
Michael Plasmeier

2.



It's 16 → make mistake

150 if pick each
30 tryals
= $5.00 a day Week.
wich is equal so he should get $5 a week so reasonable not gamble



	10	1	1	1	1	1
10	X	11	11	11	11	11
1	11	X	2	2	2	2
1	11	2	X	2	2	2
1	11	2	2	X	2	2
1	11	2	2	2	X	2
1	11	2	2	2	2	X
	16					

10 - 11's + 20 - 2's

3. I didn't do simulations its just not accurate. all of the time

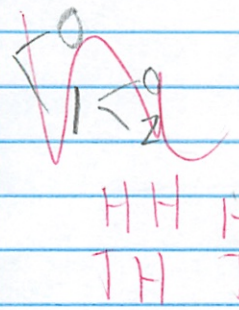
His 2 - 17 → 17/30 x 2/1 x 30/1 = 34
30x 11 - 13 → 13/30 x 11/1 x 30/1 = 143
177/30 = $5.90 per try

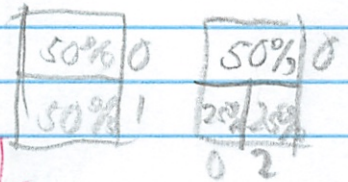
Pig Tales (22)

Michael Plasmeier 12/16

1. You could get 1 or 0, so average is .5 per turn

2. ~~You would get 2 every 3 tries so .67 per turn~~

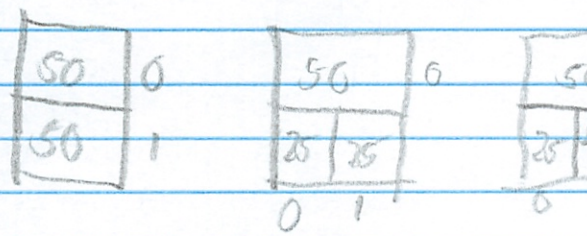




$\frac{25}{100}\frac{\$}{1} \times \frac{50}{1} = \$$

$\frac{25}{100}\frac{2}{1} \times \frac{100}{1} = \frac{50}{50/100} = .5$ per turn

3.



$\frac{87.5}{100}\frac{0}{1} \times \frac{100}{1} = 0$

$\frac{1}{8}\ \frac{12.5}{100}\frac{3}{1} \times \frac{100}{1} = \frac{37.5}{8}$

$37.5/1,375$ per turn

You still go 50

HHH HHT HTH HTT THH THT TTH TTT

4. It seems that 1 turn and 2 turns are the same?

50

16 outcomes $= 2^4$ $\frac{4}{16} = \frac{n}{2^n}$

Little Pig

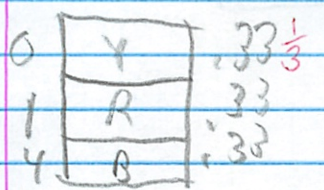
p 163

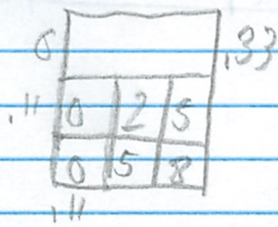
12/16

Yellow = Loose
Red = +1
Blue = +4

2 Draw

2,2





.33
.11
.11
1.55

$\frac{5}{9}$ $\frac{55}{100} \times \frac{0}{1} \times \frac{100}{1} = 0$

$\frac{2}{9}$ $\frac{22}{100} \times \frac{5}{1} \times \frac{100}{1} = 110$

$\frac{1}{9}$ $\frac{11}{100} \times \frac{2}{1} \times \frac{100}{1} = 22$

$\frac{1}{9}$ $\frac{11}{100} \times \frac{8}{1} \times \frac{100}{1} = \underline{88}$

220/100

EV pt. 2.2

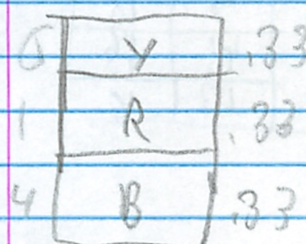
in 3's? why easier to count # possibilities

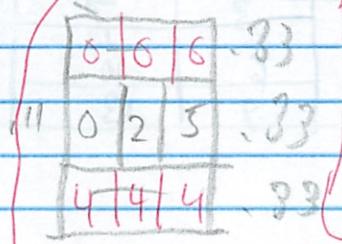
Is still cut in 3's? Can cut

Don't need to cut

2 pt.

2,11





$\frac{44}{100} \times \frac{0}{1} \times \frac{100}{1} = 0$

$\frac{33}{100} \times \frac{4}{1} \times \frac{100}{1} = 132$

$\frac{11}{100} \times \frac{2}{1} \times \frac{100}{1} = 22$

$\frac{11}{100} \times \frac{5}{1} \times \frac{100}{1} = \underline{55}$

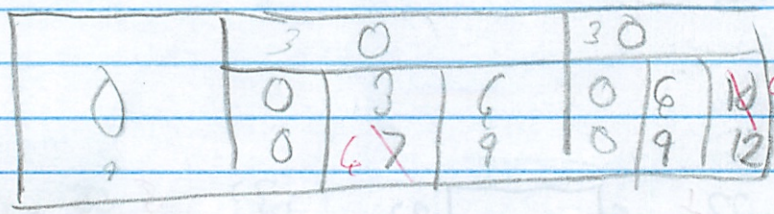
$\frac{19}{9}$ 209/100

E pt 2.09 2.11

I found 2 draws is better because if you get a 4, you have a $\frac{1}{3}$ further chance of 2x or +1 pt.

Draws

3 Draws



2.22

Pass

$\frac{19}{27} \times 0 = 0$

$\frac{27}{1}$

$3 \times \frac{1}{27} = 3$

$6 \times \frac{3}{27} = 18$

~~$7 \times \frac{1}{27} = 7$~~

$9 \times \frac{3}{27} = 18$) 7

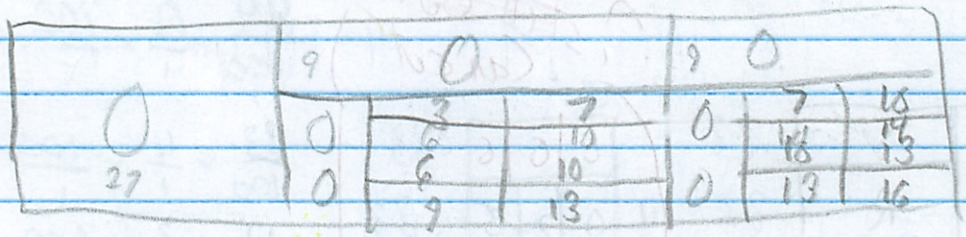
~~$10 \times \frac{1}{27} = 10$~~

$12 \times \frac{1}{27} = 12$

$\frac{60}{27} = 6\frac{3}{27} = 2\frac{2}{9} = 2.22$ pt per turn

×3

4 Draws



1.81

$\frac{81}{1}$

$0 \times \frac{1}{81} = 0$

$3 \times \frac{1}{81} = 3$

$6 \times \frac{2}{81} = 12$

~~$7 \times \frac{2}{81} = 14$~~

$9 \times \frac{1}{81} = 9$

$104 = 40$

$133 = 39$

$141 = 14$

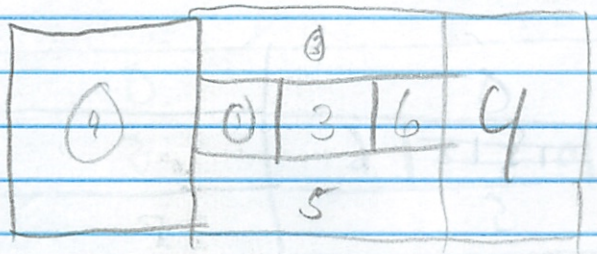
$161 = 16$

$147/81 = 1.81$ pt per turn

More Little Pigs

pts

3ps



= 27

each time it's ×3

2.22

$\frac{13}{27} \times 0 = 0$

$\frac{1}{27} \times 3 = \frac{3}{27}$

$\frac{4}{27} \times 4 = \frac{16}{27}$

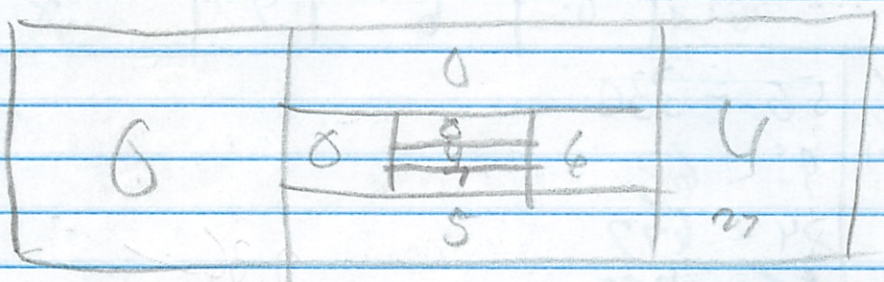
$\frac{2}{27} \times 5 = \frac{10}{27}$

$\frac{1}{27} \times 6 = \frac{6}{27}$

$\frac{60}{27} = 2\frac{6}{27} = 2\frac{2}{9} = 2.22$ per turn

---

4pts



81

2.24

2.25

4 | 28 = 112

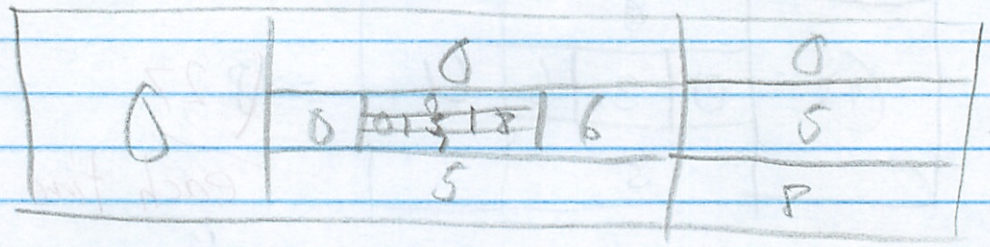
5 | 9 = 45

6 | 3 = 18

7 | 1 = 7

182/81 = 2.24 EV pt per turn

5 ptr



2.36
2.362

5	55 = 275
6	9 = 54
7	3 = 21
8	28 224

574 / 243 = 2.36 FU pts per term

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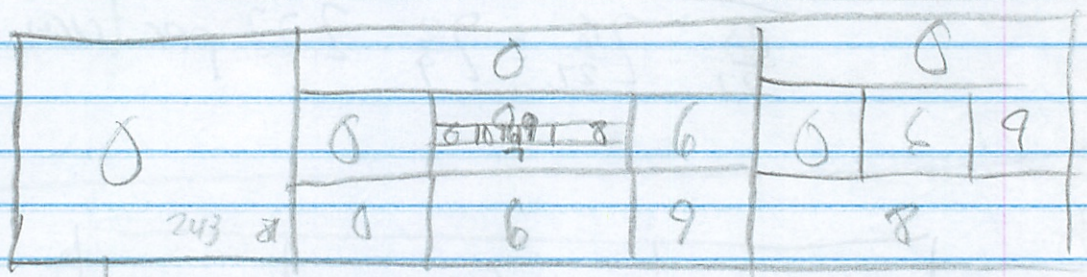
6 pts



2.13
2.36

6	55 = 330
7	9 = 63
8	84 = 672
9	55 = 495

1560 / 729 = 2.13

2.36

FU	1	2	3	4	5	6	7
Pts	1.66	2.11	2.22	2.25	2.362	2.38	2.325
Draw	1.66	2.2	2.22	1.81	—	—	

.45 Smaller → .03