

Primary Colors

THIS ISSUE'S PUZZLES

1. Paints 'R Us. A Junior Achievement activity, Paints 'R Us (PRU), needs your guidance. They mix and sell paint. Their paint inventory consists of 60 quarts of blue (B), 40 quarts of red (R) and 30 yellow (Y). They mix equal parts of B and R yielding purple (P), R and Y forming orange (O), and R and Y resulting in green (G). A quart of P sells for \$6, O for the premium price of \$20, and G for \$9. They're permitted to sell only these mixed



paints. Further, there is a penalty for any of the primary colors not used; the charge per quart is the same for any leftover B, R or Y. Help PRU determine the number of quarts of P, O and G they should mix for the greatest return for each of three scenarios: if the charge for unused quarts is (a) \$4 (b) \$5 or (c) \$6.

PLEASE MAIL ALL ANSWERS TO ALAN GOLDBERG, PUZZLES EDITOR, 303 BLUE RIDGE ROAD, LOUISVILLE, KY 40223; OR E-MAIL TO CONTPUZZLE@AOL.COM; OR FAX TO (502) 245-5260. THE NAMES OF THOSE WHO SEND CORRECT SOLUTIONS WILL BE ACKNOWLEDGED IN A FUTURE ISSUE OF CONTINGENCIES.

2. What color slam? Your choice: a red suit, a black suit or notrump. South is on lead and hasn't lost a trick. Can South make a slam, perhaps even a grand slam? And, if so, at what contract(s)? This multiple choice bridge problem was posed by David McCann.

	♠ A 6	
	♥ 6	
	♦ 6	
	♣ 6	
	NORTH	
♠ J 4		♠ 8 5
♥ 3 2	WEST	♥ 9 8
♦ —	EAST	♦ 8
♣ 5		♣ —
	SOUTH	
	♠ 9 7	
	♥ J 5 4	
	♦ —	
	♣ —	

ANSWERS TO LAST ISSUE'S PUZZLES

1. Pistols at Dawn. After a three-way argument about probabilities, actuaries Al, Ben and Chad agreed to a duel. They would draw straws to see who would shoot first, second and third. They would stand at corners of an equilateral triangle, fire single shots in order of the draw and continue the cycle until only one survived. The shooter may aim wherever he chooses. Research on marksmanship reveals that Al is 100% accurate; Ben, 75%; and Chad, 60%. If Chad drew the first shot he had decided his chances would be improved if he missed intentionally since Al would surely fire at Ben, given a chance. Assuming that strategy, calculate the probabilities of survival for each. Is there a problem with this puzzle?

THE ANSWER IS: The "answer book" gives the probabilities for survival as 25% for Al, 12.5% for Ben, and 62.5% for Chad. The answers were explained as follows: Chad (C), if first, would aim at no one. Half the time A would be next and kill B; leaving C a 60% chance of felling the sharpshooter A. The other half of the time

B would aim at A and succeed 75% of the time. (If B missed, then A would eliminate B giving C a 60% chance as before.) With A gone, C aims at B; even if he misses, C may be the survivor since B is not a sure-shot. The result of the C and B match up is an infinite series; C going first would nail B 2/3 of the time. The reader is left to assemble the answers. What's the problem with this puzzle? Given the assumed strat-

egy, the probabilities in the "answer book" are correct, but C is not the only one who can plot a strategy. A and B both reason that if one eliminates the other, C will have the first shot at them and have an edge even though C is the poorest shot. Hence they, too, will aim skyward. The duel becomes a stand-off and no one is killed. Of course that explains why actuaries have an above average life expectancy.

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2. Queens vs. Jacks. South, on lead at ♠ 6, needs four more tricks to make the slam. The offense has all the jacks, but the defense has the queens. The cards are exposed for all to see; will declarer succeed? If so, how? If not, why? This bridge problem was presented to me by David McCann.

	♠ A 7		
	♥ —		
	♦ J 8		
	♣ J		
	NORTH		
♠ K Q			♠ —
♥ A 8 7	WEST	EAST	♥ Q 9
♦ —			♦ Q 9
♣ —			♣ Q
	SOUTH		
	♠ J 9		
	♥ K J		
	♦ K		
	♣ —		

THE ANSWER IS: The jacks overcome the queens; declarer makes the slam. South leads to the ♠ A and returns to the ♦ K. West can't ruff because a heart lead would be fatal. Declarer then leads the ♥ K which West must cover and dummy ruffs. Meanwhile East was forced to make a discard on the original spade lead and now, with two tricks yet to play, is down to two Q's. If the ♦ Q or ♣ Q have been played, dummy's J of that suit is good and declarer discards a heart; West ruffs but declarer wins the last trick with a trump. If West still holds both minor suit Q's, South's ♥ J will be high; declarer trumps the lead from dummy and West is forced to concede this trick or a heart at the end. ●

Solvers (Previous Issues): D. Berne, J.J. Doucette, T. Feury, A. Newman, D. Promislow, B. Shroyer.

Solvers (Sept/Oct): J. Albright, E. Arvanitis, M. Barsky, S. Berman, R. Bottelli, Mark Evans, L.K. Helfgott, D.R. Iverson, R. Koch, D. Llewellyn, D. Onnen, J. Reinbolt, A. Ribaud, S. Ruehr, D. Sachs, R. Shapland, D. Skurnick, A. Spooner, W. Steffen, R.C. Stokes, K. Trapp, S.L. White, R. Wilton, C. Woodhead.