# Pirate-Zombie Math

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- Three pirate-zombies are on one side of a river, and three humans are on the other side. There is a boat capable of carrying only two at a time. At no point can the zombies outnumber the humans on one side of the river, or the pirate-zombies will eat the humans. Each group wishes to change sides of the river. Determine which side of the river the boat must start from and how to manage the groups to get everyone safely to their destination. You can assume that it only takes one human or one pirate-zombie to paddle the boat across the river.

# Answers

- Initially the zombies are on side A and the humans are on side B.
- The boat starts on the side with the zombies (side A).
- 1) One zombie rows across to side B.
- 2) Two humans row across to side A.
- 3) One human and one zombie row across to side B.
- 4) Two humans row to side A.
- 5) One zombie rows to side B.

- As it turns out, the three pirate-zombies and three humans actually are on the same side of the river and all need to get across for a big human-pirate zombie mixer. They have a boat capable of carrying two at a time, however, this time only one of the pirate-zombies is capable of rowing the boat. All humans are still capable of rowing. At no point can the pirate-zombies outnumber the humans on one side of the river, or the zombies will get hungry and eat the humans. What is the minimum number of trips across the river in order to get everyone to the party?

Starting with 3 humans (H1,H2,H3) and 3 zombies (Z1,Z2,Z3). Z1 and Z2 do not know how to row the boat.

1) H1 & Z2 row to the other side.
2) H1 returns.
3) Z1 & Z3 row to the other side.
4) Z3 returns.
5) H1 & H2 row to the other side.
6) H1 & Z2 return.
7) H1 & Z3 row to the other side.
8) H1 & Z1 return.
9) H1 & H3 row to the other side.
10) Z3 returns.
11) Z3 & Z2 row to the other side.
12) Z3 returns.
13) Z3 & Z1 row to the other side.

This puts 3 humans, 3 zombies, and the boat on the other side of the river.

# CHALLENGING!!

- You are one of four-pirate zombies. You and your group of pirate-zombies are special though. You guys are incredibly intelligent. You've been walking for days and are starving until you see a group of humans across a bridge. You and your friends realize that you all can sneak up on them, but you estimate that they will be leaving in 12 minutes and you will need all four of you guys to take them on. The bridge appears to be weak and only two of you can cross at a time. It is also dark and there are holes in the bridge. Thankfully one of you guys has a candle to see the holes. You are the fastest and can cross the bridge in one minute. One of your friends takes two minutes, another takes four and the slowest one takes five. Can you and your friends catch them?

- Send the fastest two over first (2 min)
- Send fast one back (3 min)
- Send two slower ones over (8 min)
- Send number 2 over (10 min)
- Both one and two go back (12 min)

# Thank you!!!


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