



Maths With Zombies

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18. The Zombie Horde Problem

You're out foraging for food when you turn a corner and find a mass of zombies staggering down the street towards you. Climbing onto a burned out car, you can see that the horde stretches back for five city blocks, each of which is 88 yards long, and that they are moving at 3 miles an hour. You look round for somewhere to hide but the only shelter that's close enough is an abandoned tank. You climb inside and lock the hatch just as the first of the zombies reach you. If you keep very quiet, they won't know you're there and they'll all walk right passed. If, however, they realise you are there, they'll surround the tank and you'll never be able to get out. Being a tank, there's no way for you to see outside without opening the hatch to take a look, yet night is falling fast and if you stay in the tank too long, you won't be able to get back to your safe house before it gets dark, so every minute counts. How long will it be before it's safe for you to open the hatch again? (**HINT:** There's 1,760 yards in a mile.)

- A. 4 minutes.
- B. 5 minutes.
- C. 6 minutes.
- D. 7 minutes.

What answer did you get?

- A:** Oh no! You opened the hatch a minute too soon, meaning there were still zombies all around you. Now they know you're there, you'll never get out alive.
- B:** Spot on! You opened the hatch just as the last zombie has shuffled passed, meaning you can escape back to your safe house before night finally falls.
- C:** You stayed in the tank a minute too long. You'll be safe from the zombie horde, but you might not make it back to your safe house before it's dark.
- D:** Seven minutes? You're way out. You'll never make it back to your safe house in time. Looks like you'll be stuck in the tank all night.

How to work it out: The first thing you need to work out is how long the horde of zombies is. Each city block is 88 yards in length and the zombies stretch for five blocks so the whole zombie horde is 5×88 yards long. This works out at 440 yards. This means that the last of the zombies are 440 yards away when you close the hatch on the tank. Next, you need to work out how long it will take all the zombies to stagger passed you. To do this, the first thing you need to do is convert the speed from miles an hour to yards a minute. This is done by multiplying the speed in miles an hour (3) by the number of yards in a mile (1,760), to give a speed of 5,280 yards an hour. This number is then divided by the number of minutes in an hour (60) to work out the speed in yards per minute. When you do this, you find out their speed is 88 yards a minute. You can now divide the number of yards the last of the zombies have to travel (440 yards) by this speed (88 yards a minute) to find out that it will take 5 minutes for the last of the zombies to pass your hiding place.