Resource 5 - Answers to Exercises

1. Milo's preferences violate the transitivity axiom discussed earlier in the resource. Remember how transitivity was defined: transitive preferences can be thought of as consistent preferences. This means that if I am offered a choice between my most preferred option, and my least preferred option, I will choose my most preferred option. In this example, Milo prefers Apples to Pears, and Pears to Oranges, implying the following preference ordering:

   Apples > Pears > Oranges

   For Milo's preferences to be transitive, or consistent, he must choose apples over oranges when given the choice. However, the results show that he chooses oranges over apples, thereby violating the transitivity axiom.

2. a. **Yes**, it could be rational. If we can assume that an individual who smokes is a utility-maximiser, then this suggests that they will make decisions for which the benefit is, at the very least, equal to the cost. As mentioned, the costs of smoking are numerous, and to non-smokers, that would be the end of the discussion. However, it is entirely possible that there is a positive utility gained by smokers when they smoke Indeed, it would be surprising if they didn't gain some positive utility from doing so! For a smoker, their decision suggests that the benefit of smoking, and the positive utility gained, is greater that the (numerous) costs!

   b. We could expect a smoker with a **higher** discount rate to smoke more frequently that a smoker with a lower discount rate. Consider, for example, the cost of reduced life expectancy to a smoker. When an individual decides to smoke, they are prioritising utility gained from consumption today (of cigarettes), versus the possible utility they might gain from consuming items in the future (not only cigarettes, but other items too). Because of the reduced life expectancy of a smoker, they will not be able to consume items in future periods, and the consumption in these periods may have brought them more utility than smoking today does! The larger the discount rate, the more inclined is the individual to give up future utility gains for utility gains today, a concept that can also be referred to as **instant gratification.** By this same logic, then, a smoker looking to quit will be more likely to do so the lower is their discount rate! If an individual is more patient, they are more willing to defer utility gains today for utility gains tomorrow.

   c. Interestingly, if we truly believe that smokers are rational actors, and therefore fully informed on the costs (and benefits) of their decisions, then health warnings on the dangers of smoking are uninformative as they provide

no new information to the individual. Evidence does, however, point to the effectiveness of anti-smoking campaigns and adverts, which is evidence to suggest that some smokers are **not** rational decision-makers! The success of advert campaigns can be seen as a sign that the individual was not fully informed on the costs and benefits of their decision. Upon viewing the adverts, the individual becomes more informed, particularly on the perceived costs of smoking. For an individual who subsequently stops smoking, this suggest that they no longer determine the benefits of smoking to outweigh the costs of doing so. They rationally stop smoking!