

. A developer wants to know whether adding fibers to concrete used in paving driveways will reduce the severity of cracking, because any driveway with severe cracks will have to be repaired by the developer. The developer conducts a completely randomized experiment with 60 new homes that need driveways. Thirty of the driveways will be randomly assigned to receive concrete that contains fibers, and the other 30 driveways will receive concrete that does not contain fibers. After one year, the developer will record the severity of cracks in each driveway on a scale of 0 to 10, with 0 representing not cracked at all and 10 representing severely cracked.

(a) Based on the information provided about the developer’s experiment, identify each of the following.

- Experimental units
- Treatments
- Response variable

(b) Describe an appropriate method the developer could use to randomly assign concrete that contains fibers and concrete that does not contain fibers to the 60 driveways.

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Continue your response to **QUESTION 2** on this page.

Suppose the developer finds that there is a statistically significant reduction in the mean severity of cracks in driveways using the concrete that contains fibers compared to the driveways using concrete that does not contain fibers.

(c) In terms of the developer’s conclusion, what is the benefit of randomly assigning the driveways to either the concrete that contains fibers or the concrete that does not contain fibers?

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