



7. Given that  $x + y + z = 1$ ,  $x + y - z = 2$  and  $x - y - z = 3$ , what is the value of  $xyz$ ?

- A  $-2$                       B  $-\frac{1}{2}$                       C  $0$                       D  $\frac{1}{2}$                       E  $2$

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7. **D** Add the first and third equations:  $2x = 4$ , so  $x = 2$ . Add the first two equations:  $2x + 2y = 3$ , so  $y = -\frac{1}{2}$ . Substitute for  $x$  and  $y$  in the first equation:  $2 + (-\frac{1}{2}) + z = 1$  so  $z = -\frac{1}{2}$ . Therefore  $xyz = 2 \times (-\frac{1}{2}) \times (-\frac{1}{2}) = \frac{1}{2}$ .