CSMM: Lesson 1.2 HW

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For the following questions, use these function definitions:

$$0 := \lambda sz.z$$

$$1, 2, 3...$$

$$S := \lambda wyx.y(wyx)$$

$$+ := \lambda ab.aSb$$

$$\times := \lambda ab.a(+b)0$$

$$E := \lambda ab.ba$$

(1-8) For each of the following,
Find the Church numeral answer for each of the following expressions (show work)
1. $+34$
2. $\times 22$
3. $E22$
4. $1S8$
5. $8S1$
6. $2(+1)0$
7. 23
8. $+(+24)3$

ANSWERS

Derivations vary, just be careful with parens and variables.

1. 7
2. 4
3. 4
4. 9
5. 9
6. 2
7. 9
8. 9