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$$5^{2x+2} - 5(5^x \cdot 5) - 14 = 0$$

$$5^{2x} \cdot 5^2 - 5^x \cdot 5^2 - 14 = 0$$

$$\text{let } u = 5^x$$

$$25u^2 - 25u - 14 = 0$$

$$(5u - 7)(5u + 2) = 0$$

$$u = \frac{7}{5}$$

$$\text{or } u = -\frac{2}{5}$$

$$\therefore 5^x = \frac{7}{5}$$

$$\text{or } 5^x = -\frac{2}{5} \text{ (NA)}$$

Not possible that  $5^x$  is negative

lg both sides,

$$\lg 5^x = \lg \left( \frac{7}{5} \right)$$

$$x \lg 5 = \lg \left( \frac{7}{5} \right)$$

$$x = \frac{\lg \left( \frac{7}{5} \right)}{\lg 5}$$

$$x = 0.209 \quad // \text{ Ans}$$